

THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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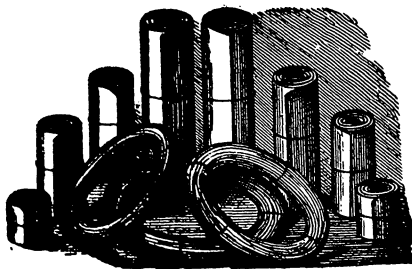
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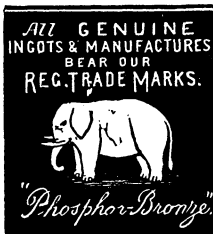
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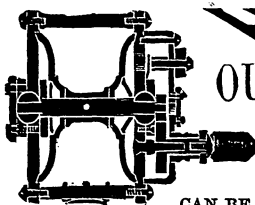
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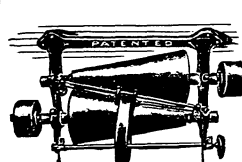
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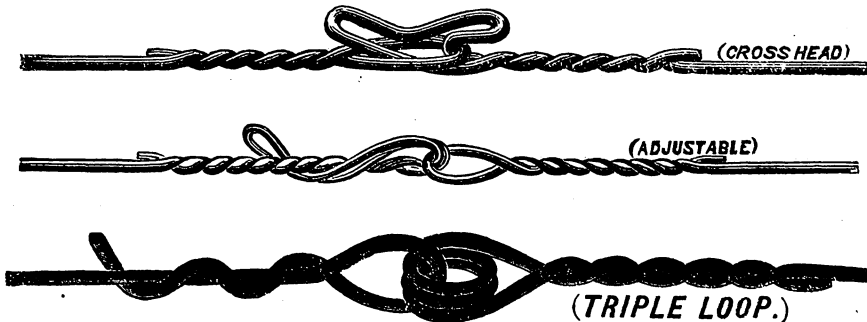
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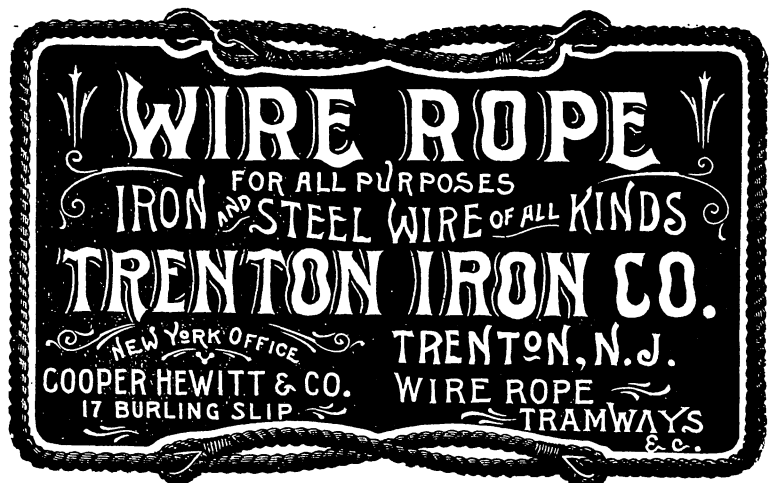
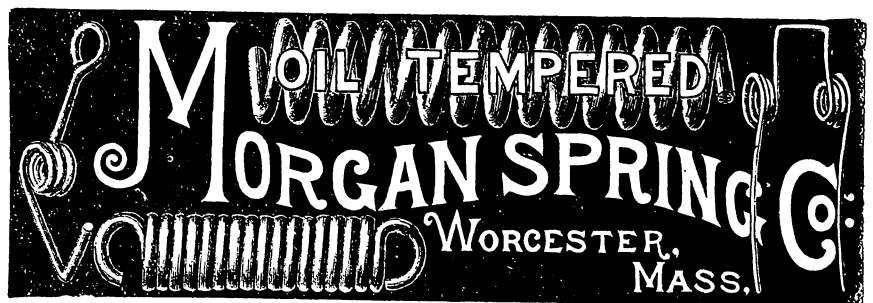
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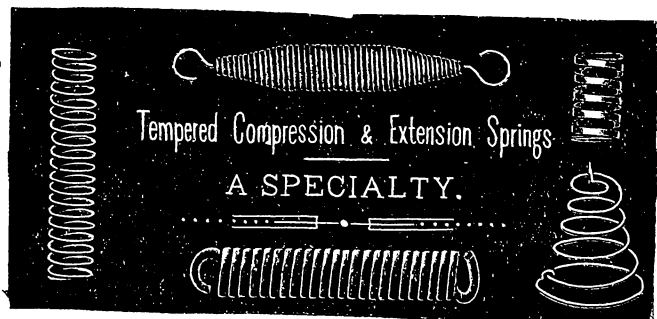
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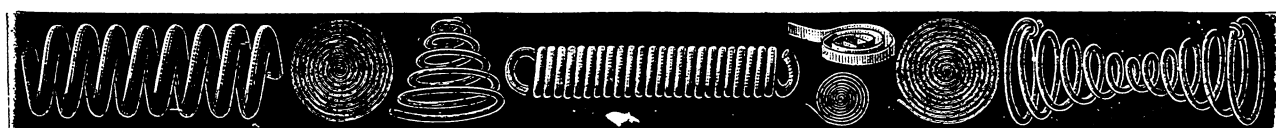
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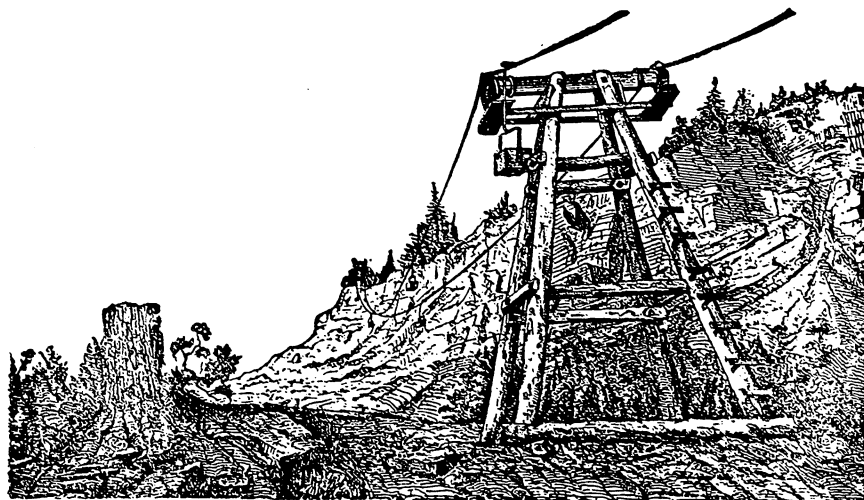
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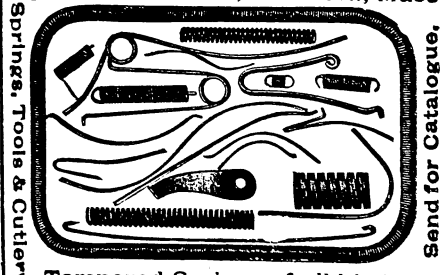
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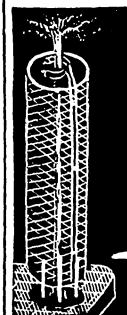
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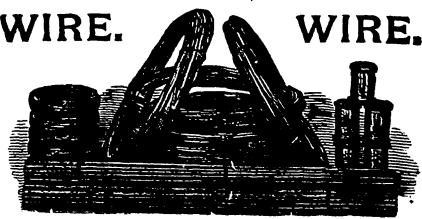


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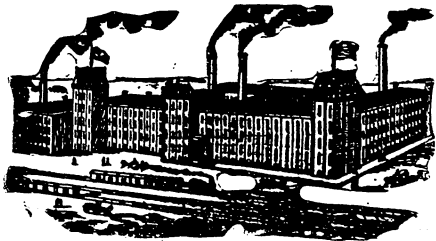
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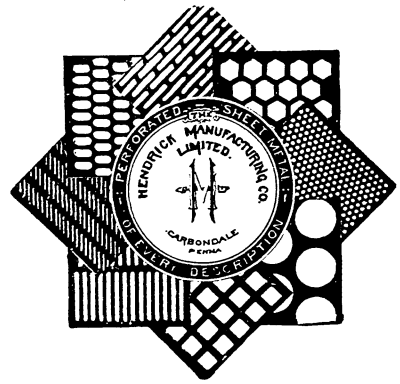
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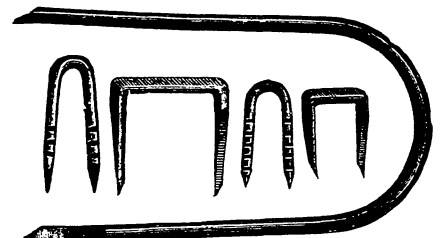
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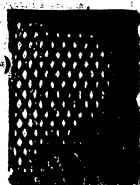


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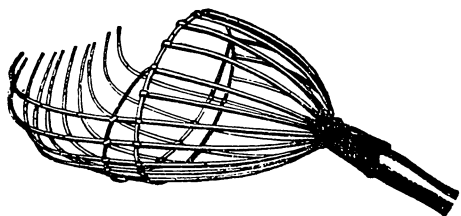
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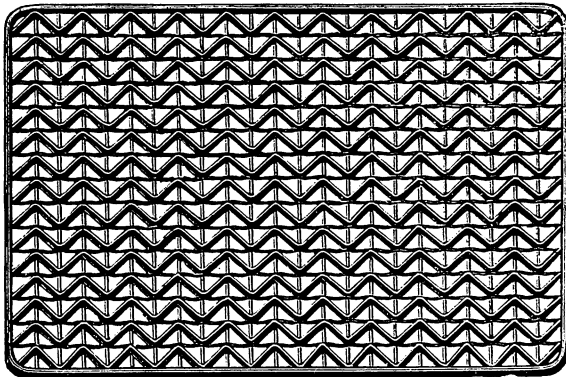
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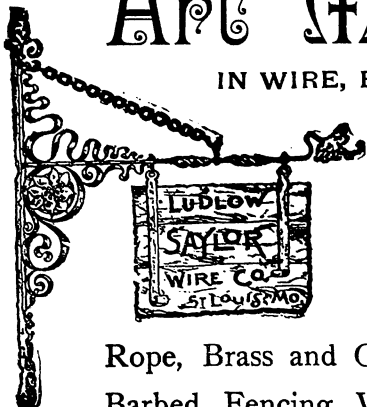
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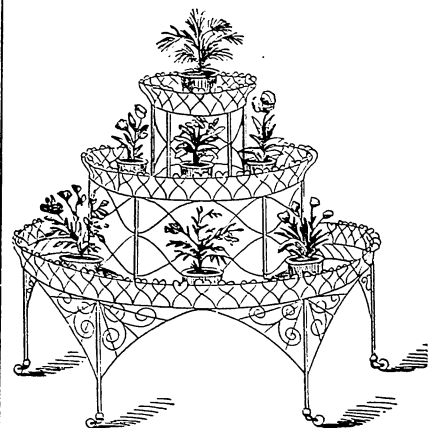
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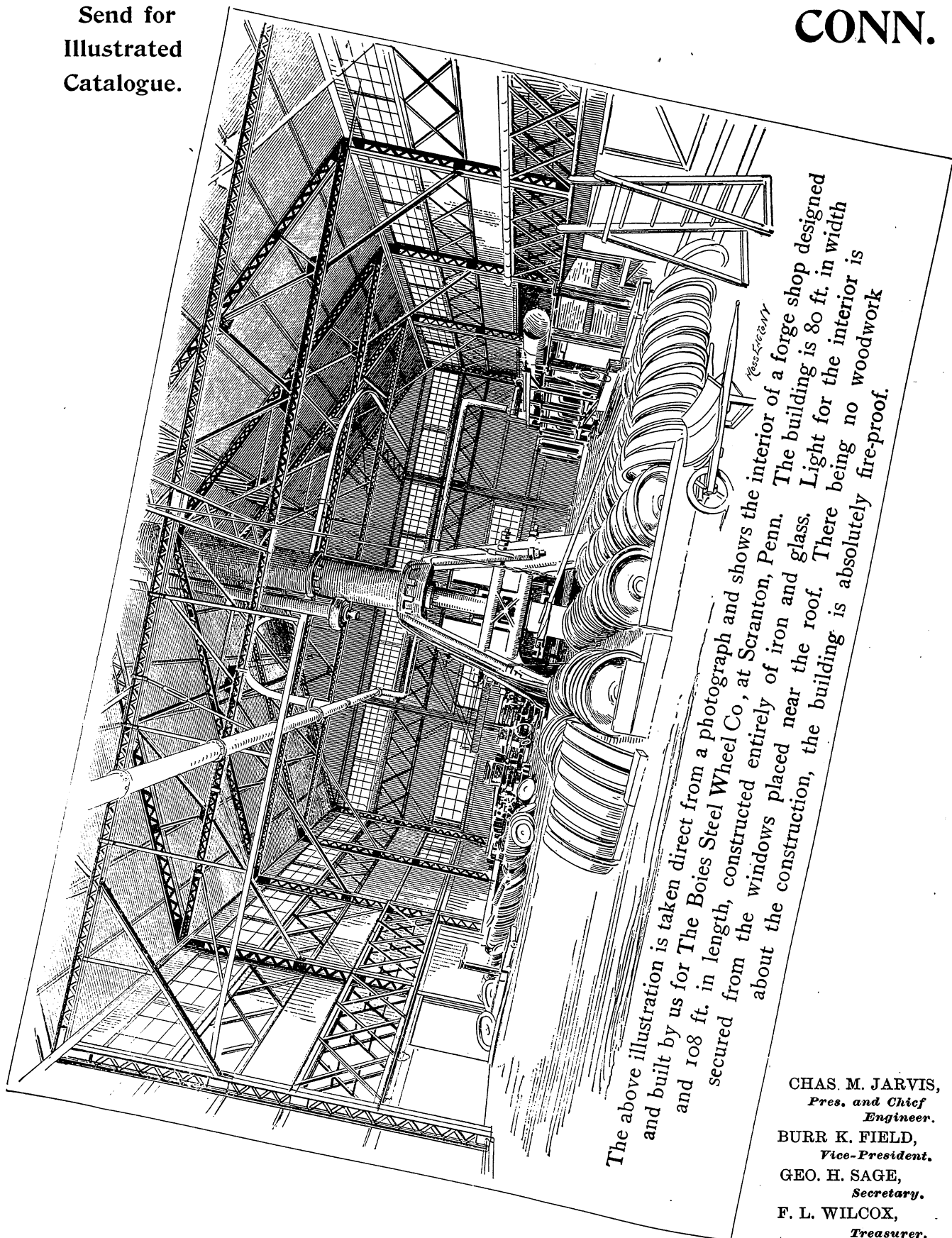
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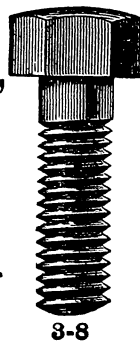
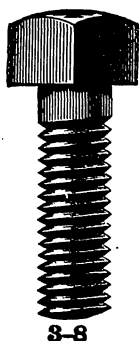
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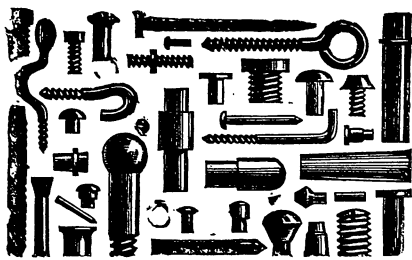
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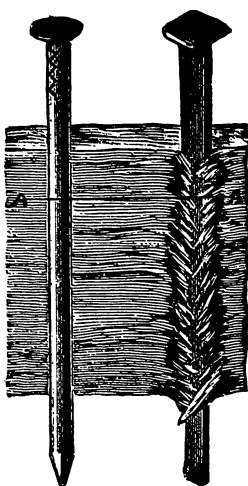
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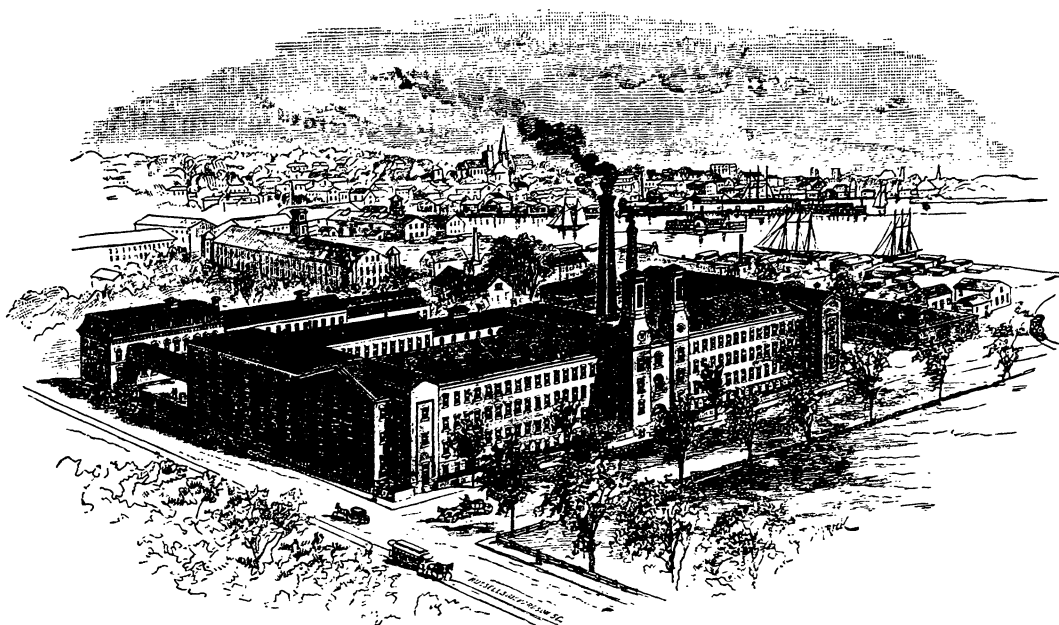
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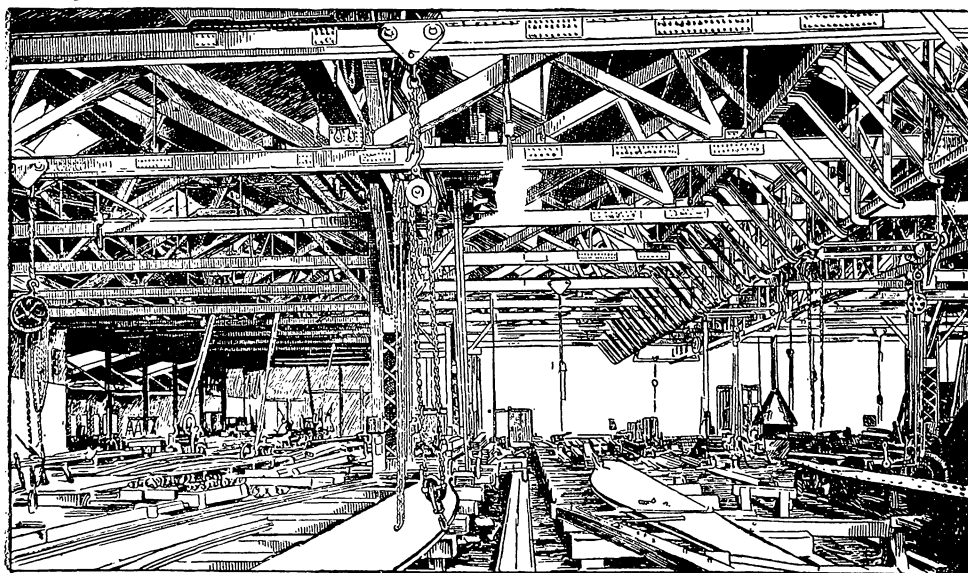
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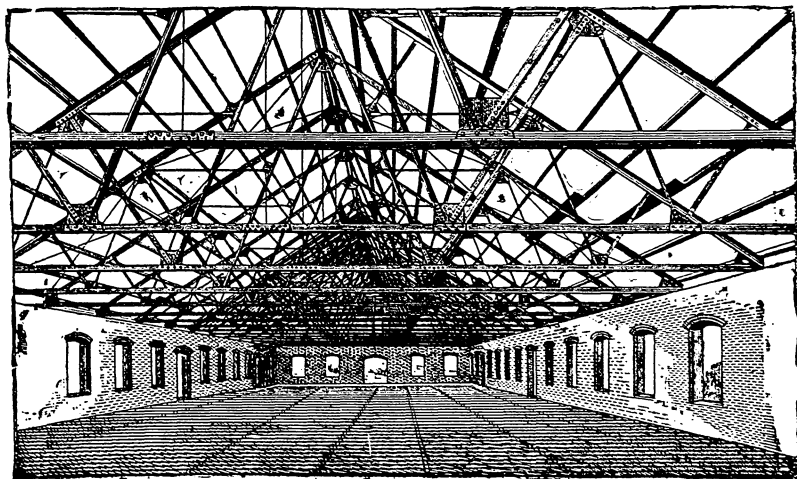
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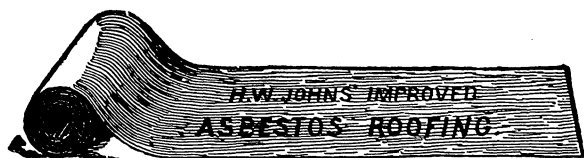
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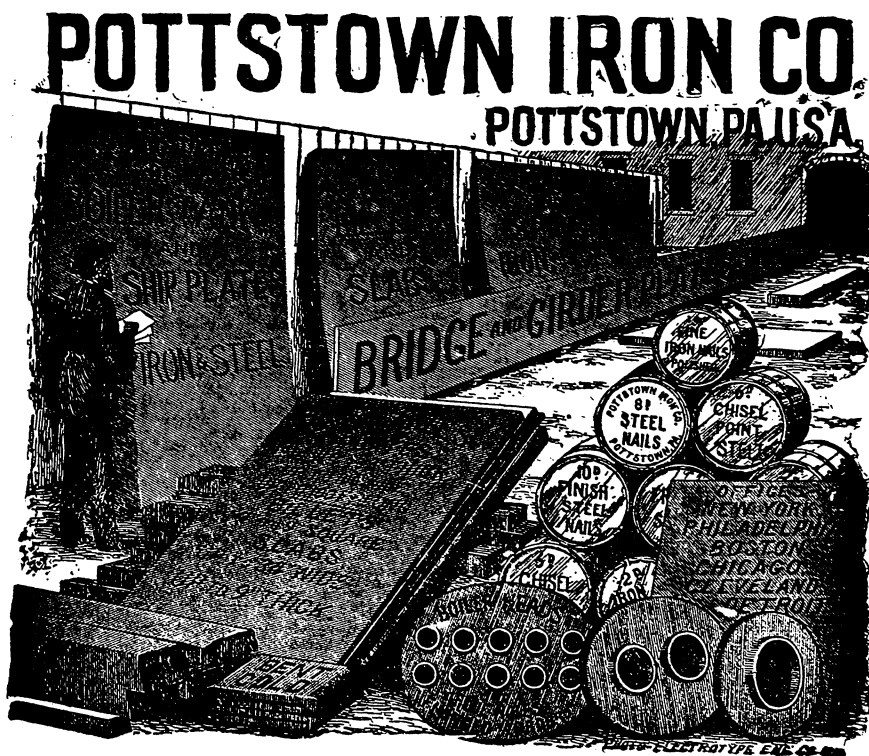
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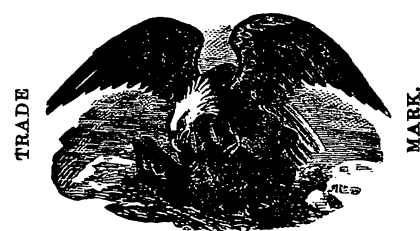
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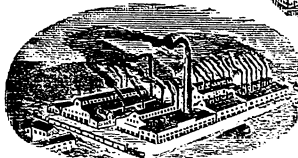
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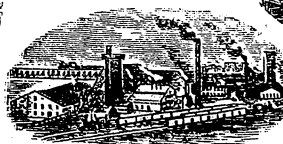
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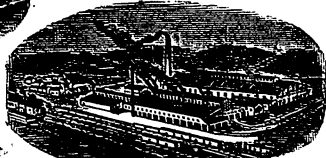
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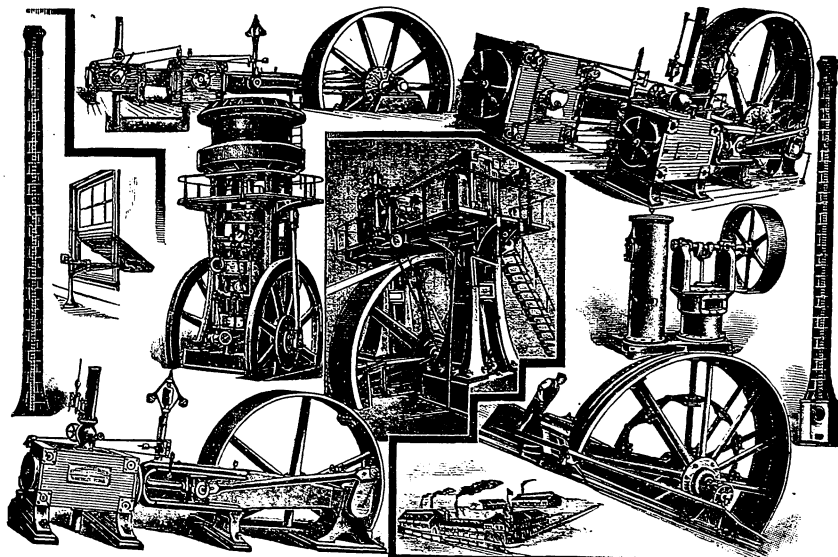
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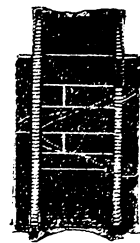
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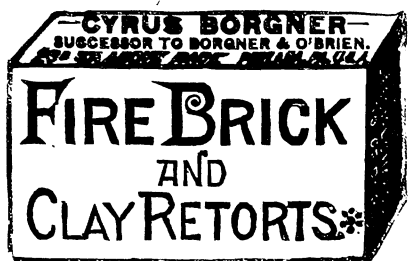
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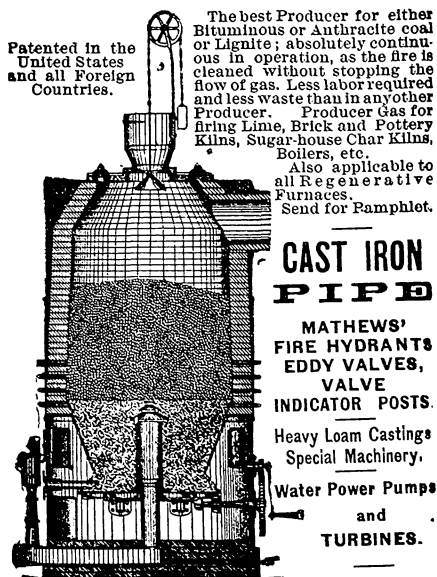
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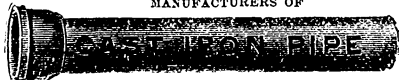
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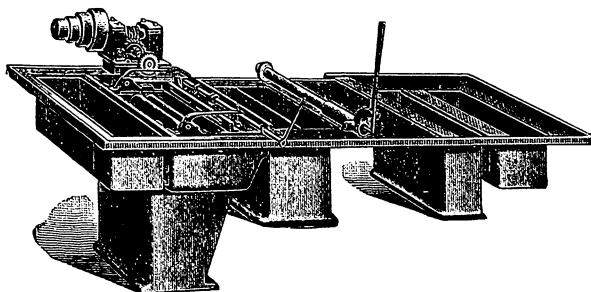
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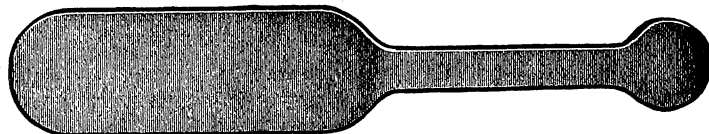
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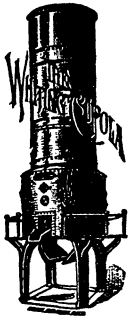
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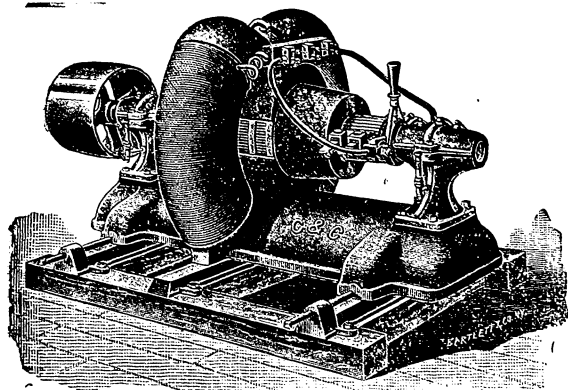
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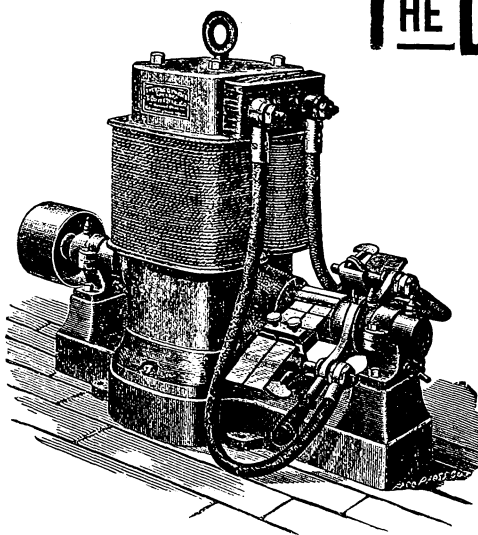
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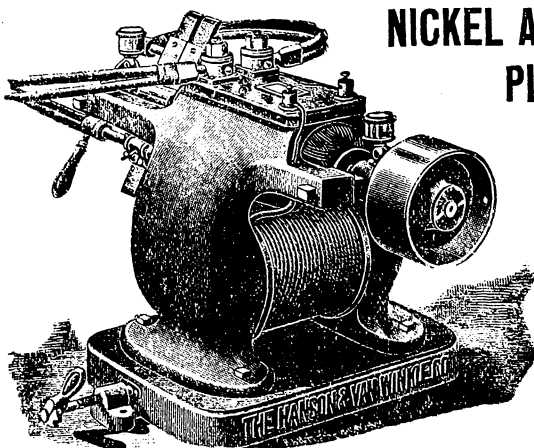
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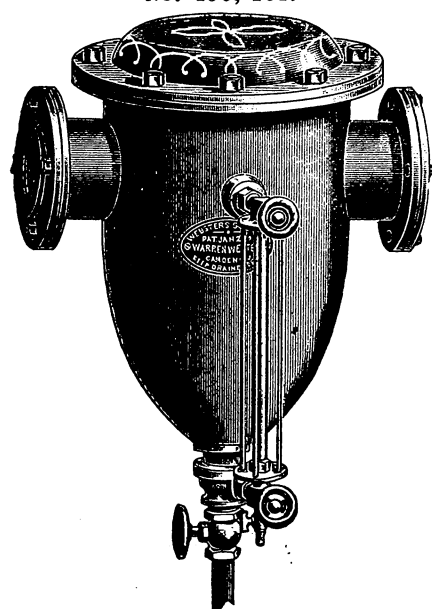
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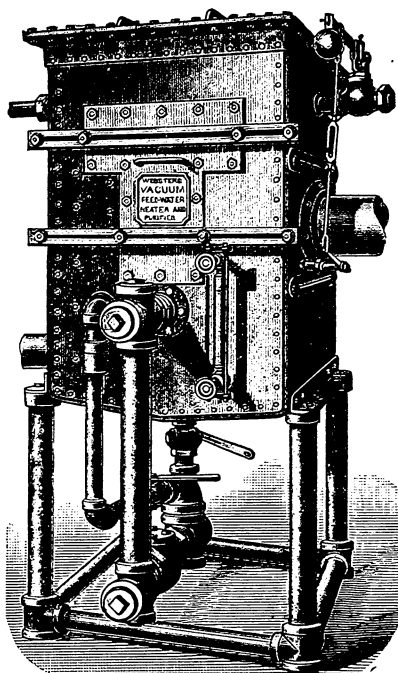
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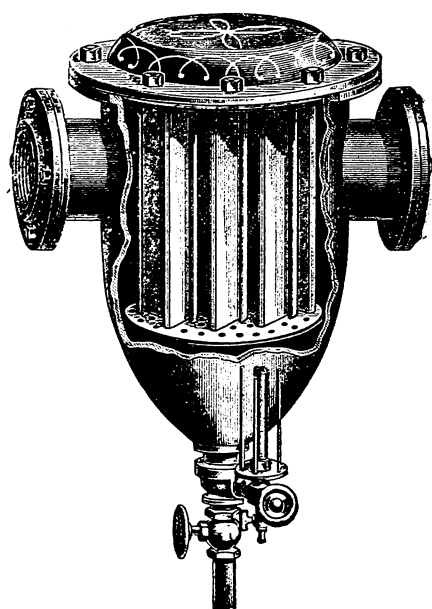
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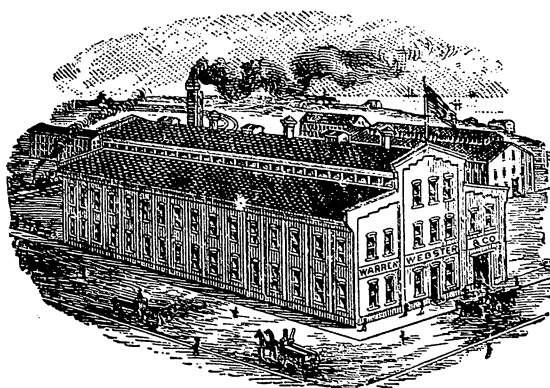
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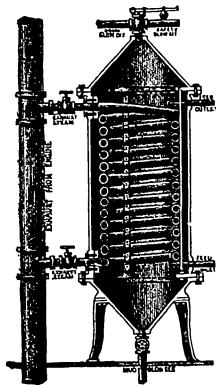
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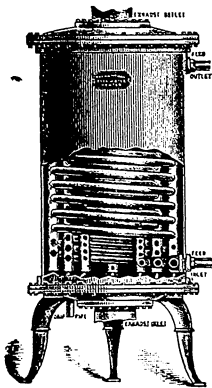
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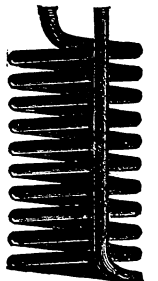


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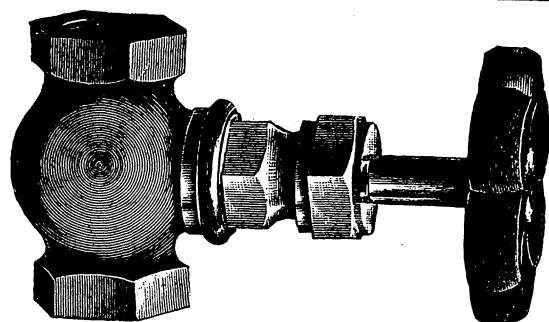
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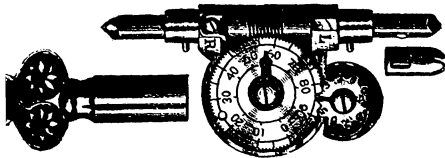
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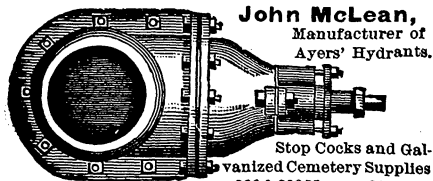
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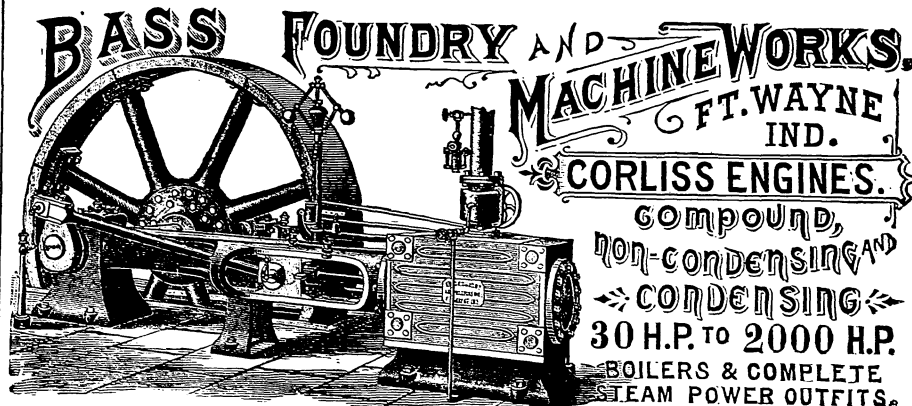


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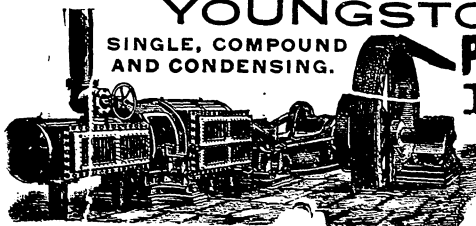
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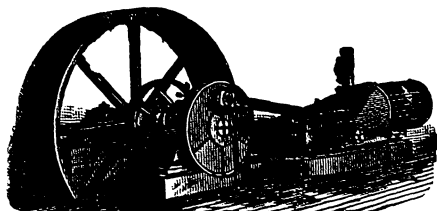


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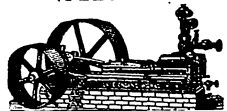
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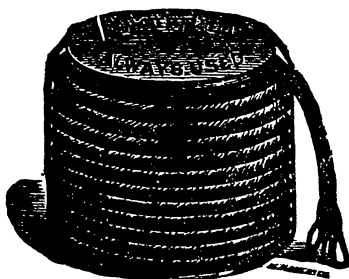


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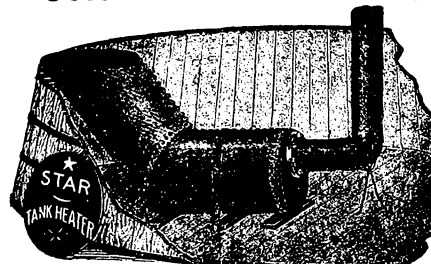


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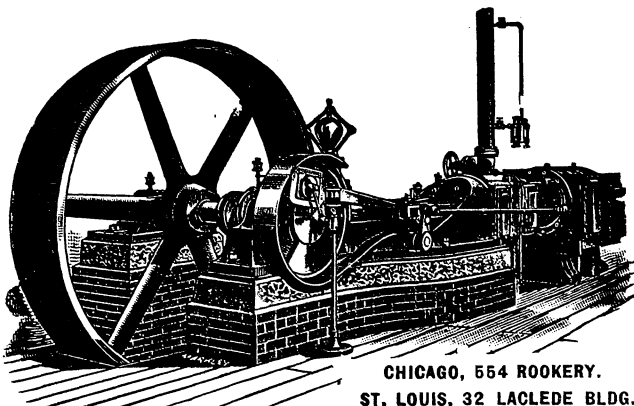
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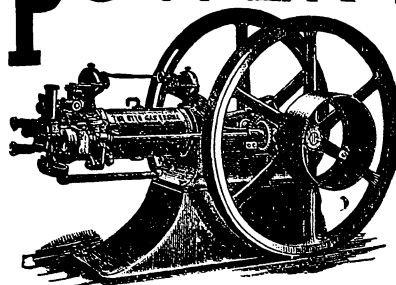
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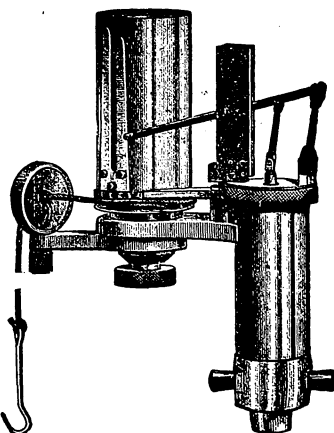
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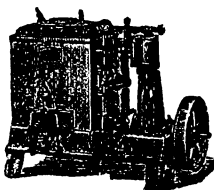
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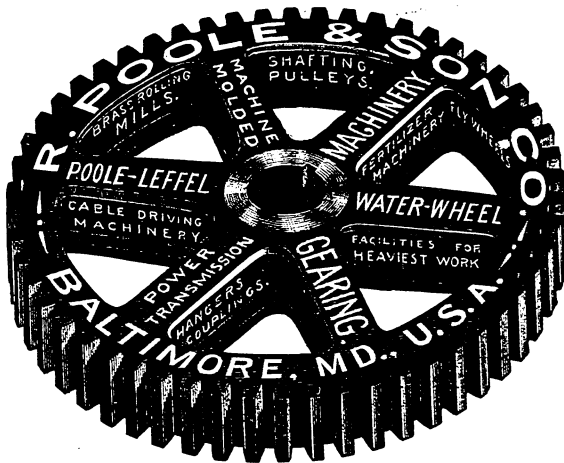


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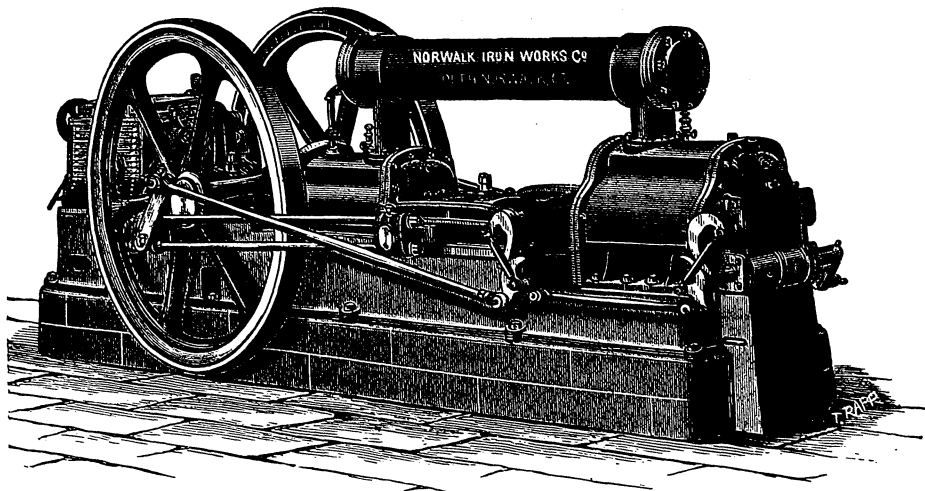


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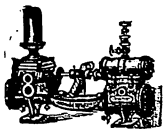


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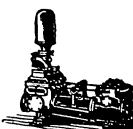
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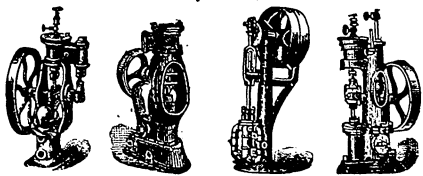
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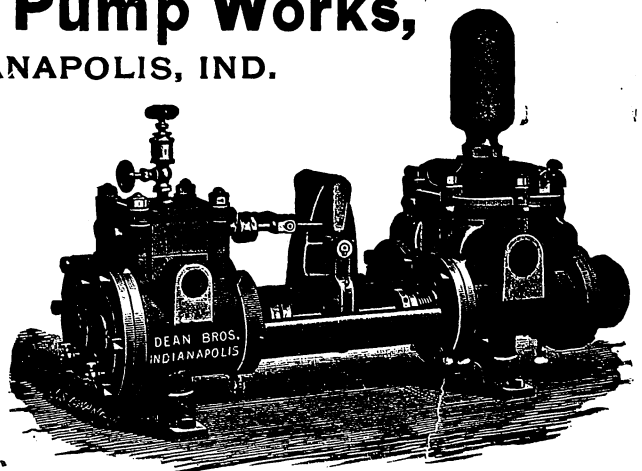
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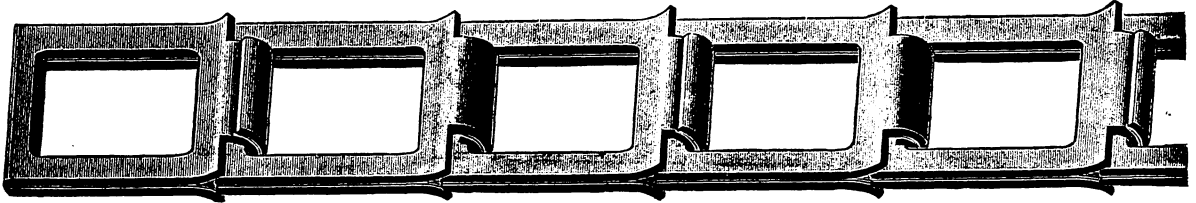
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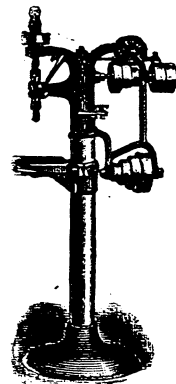
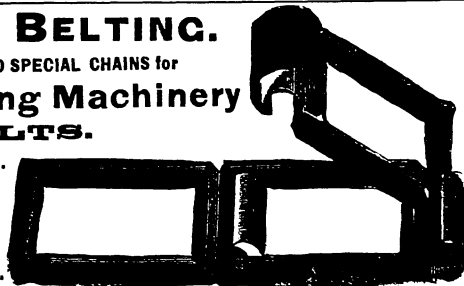
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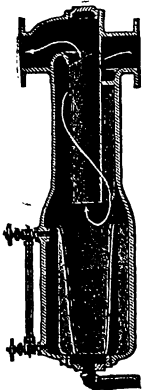


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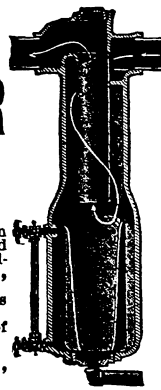
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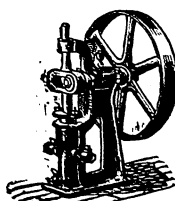
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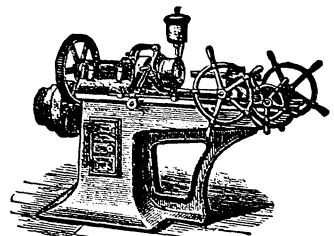
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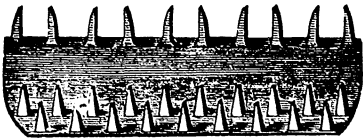
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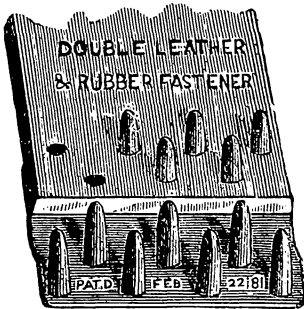
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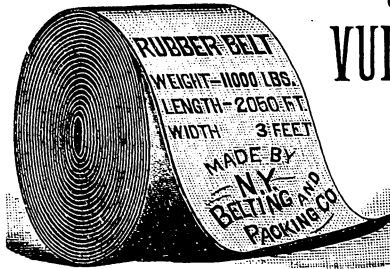
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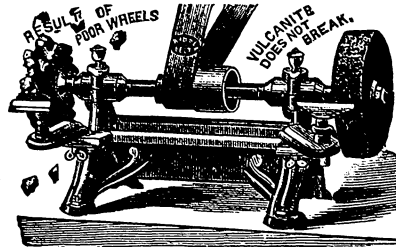
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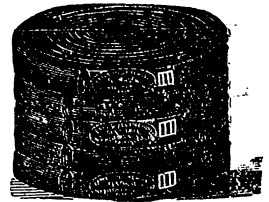
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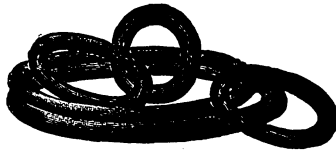
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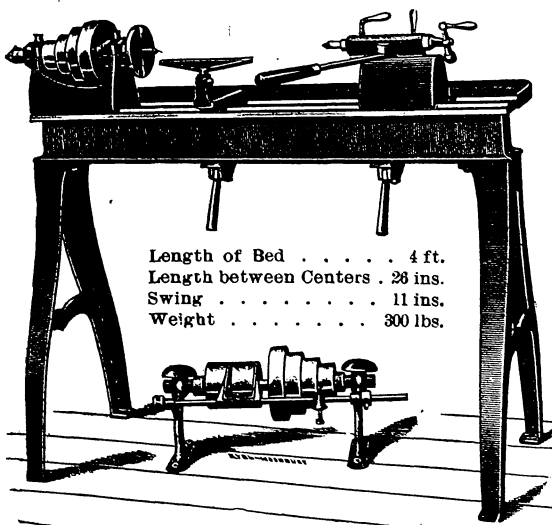
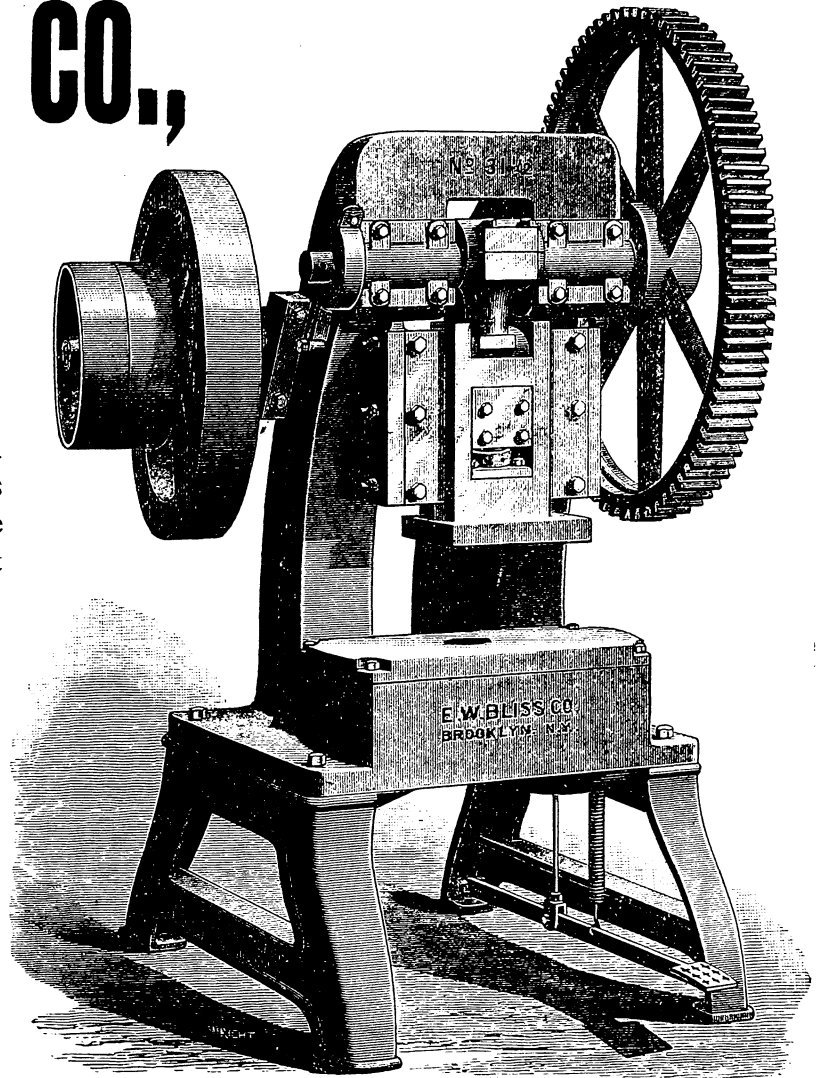
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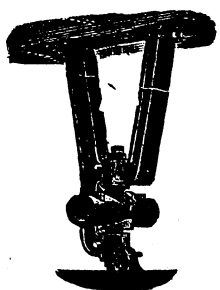
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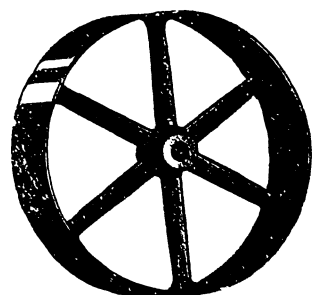
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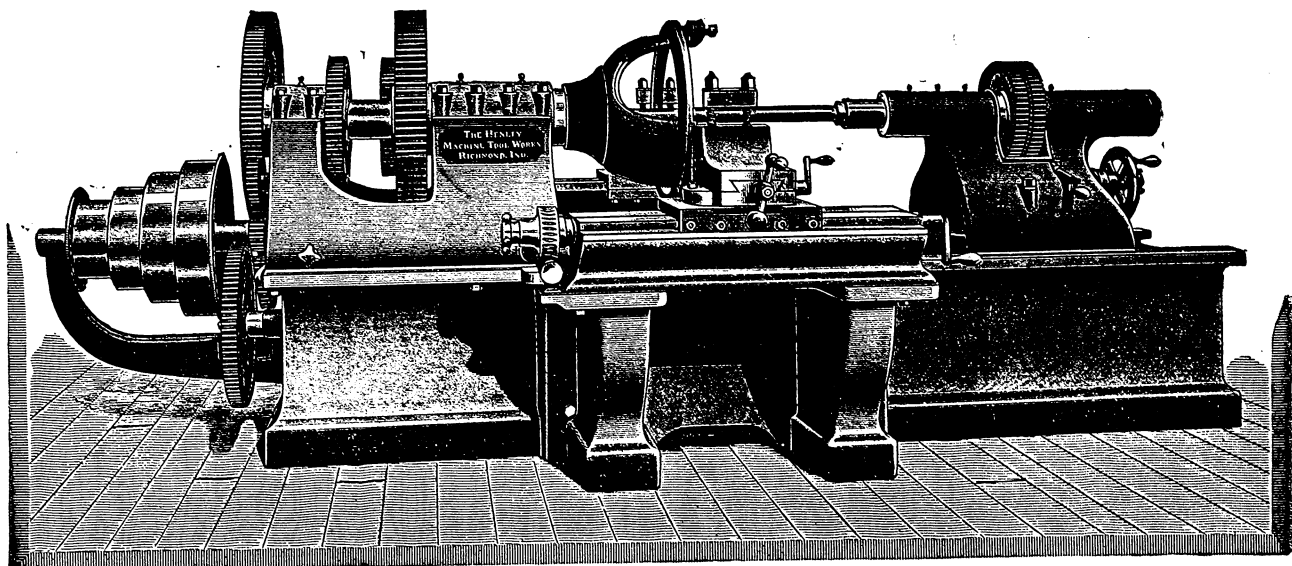
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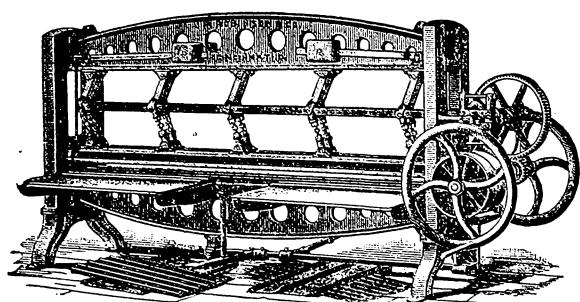
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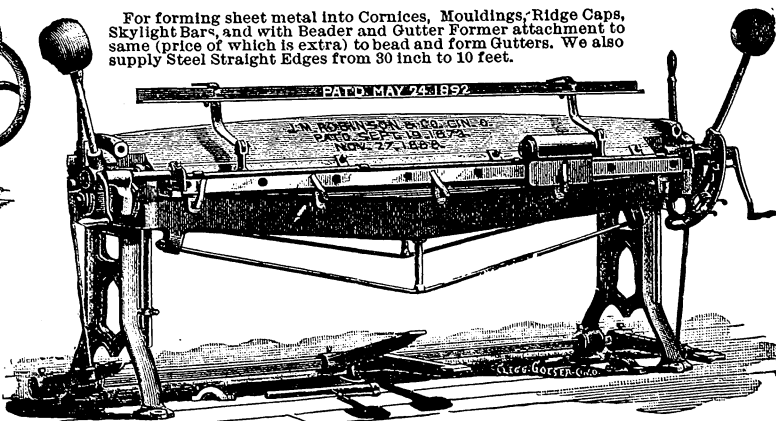
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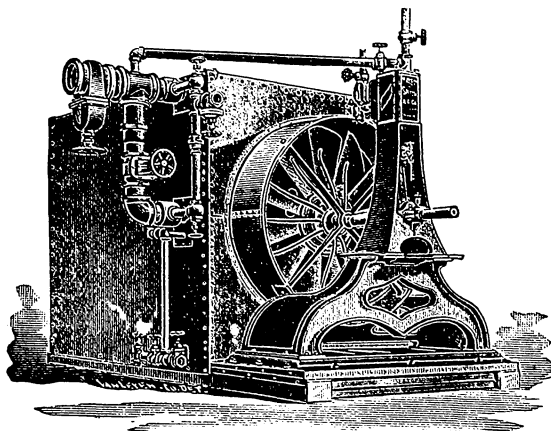
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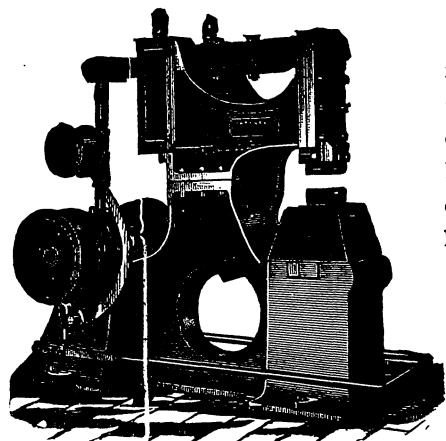
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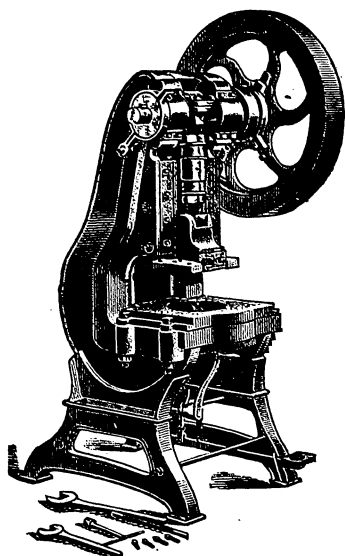
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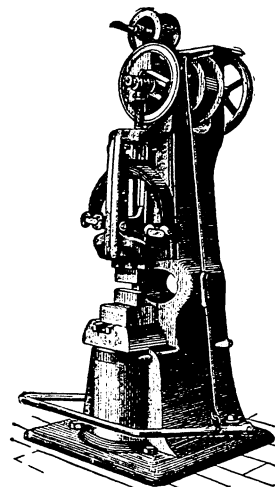
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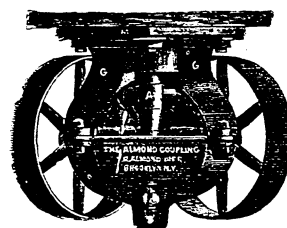
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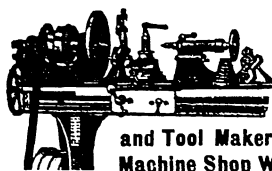
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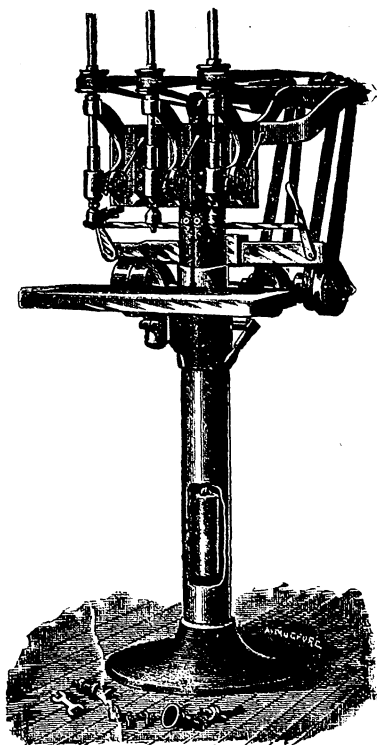
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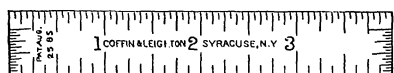
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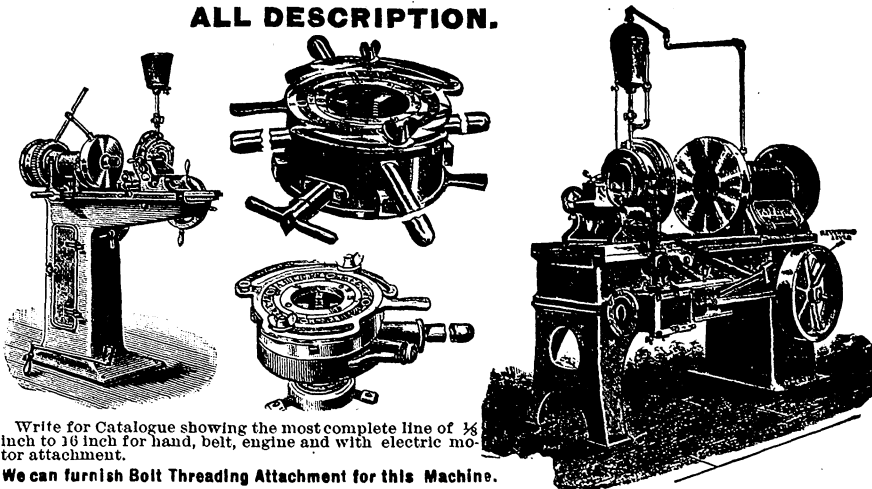
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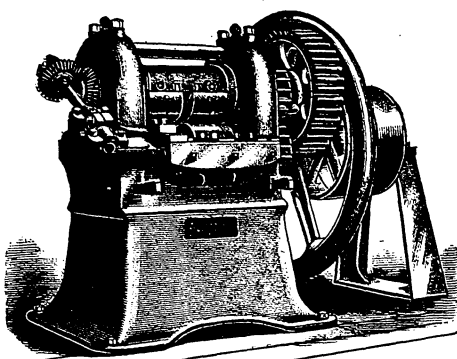
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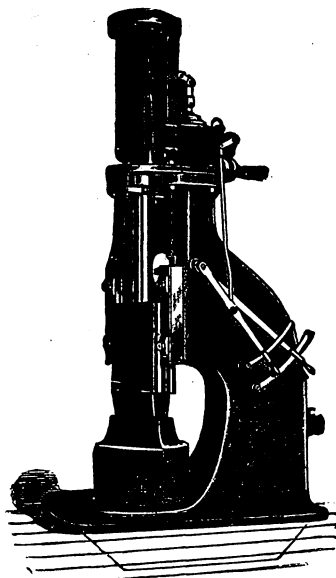
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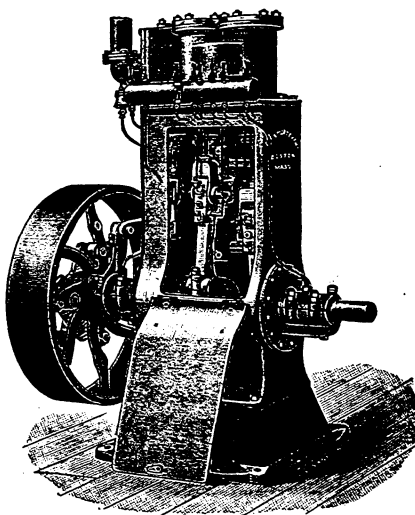
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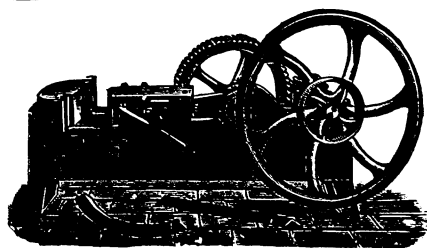
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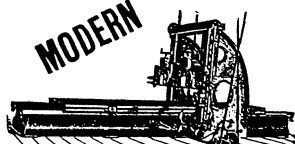
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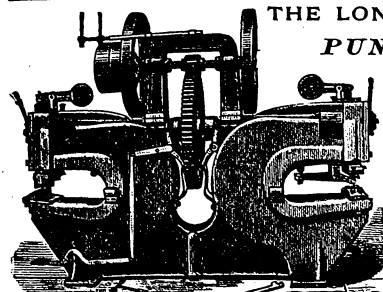
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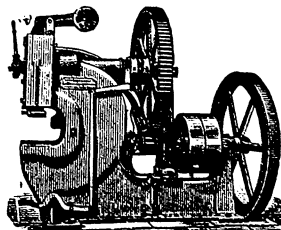


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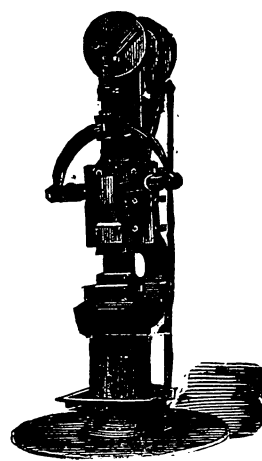
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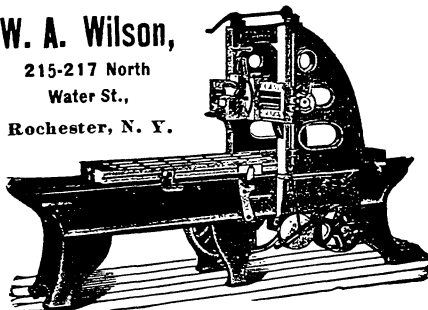
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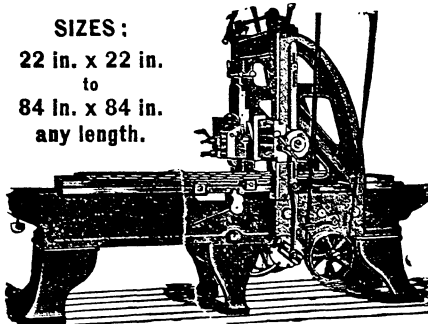
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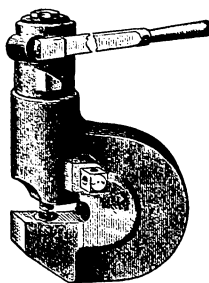
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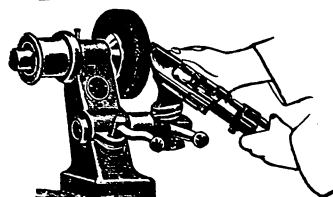
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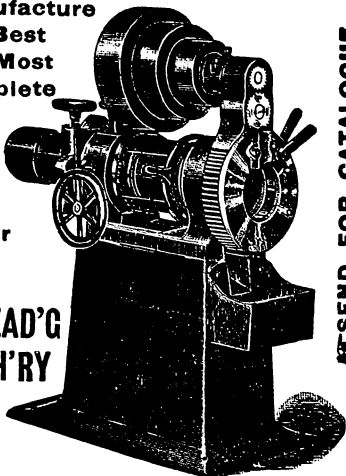


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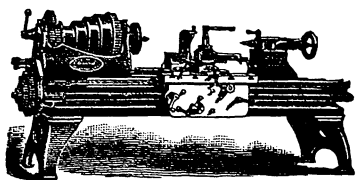
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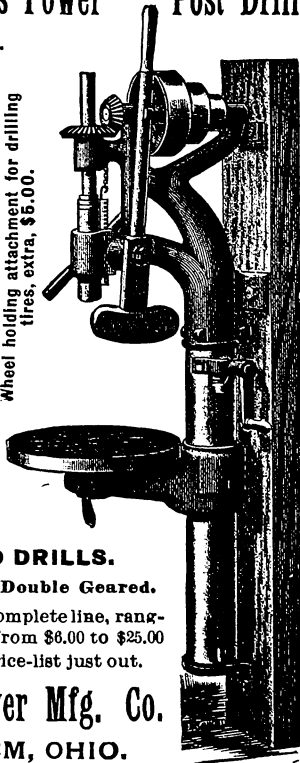
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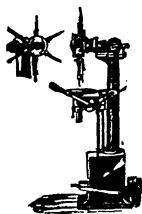


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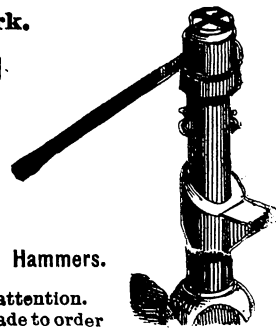
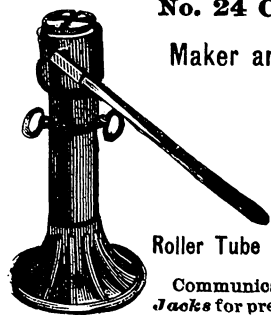
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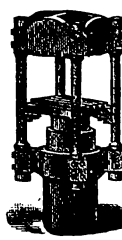
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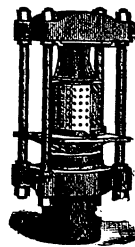
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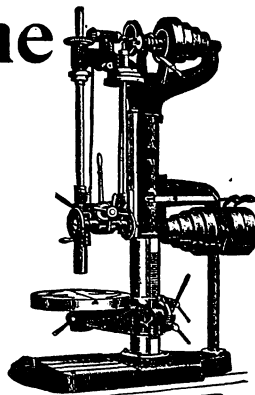
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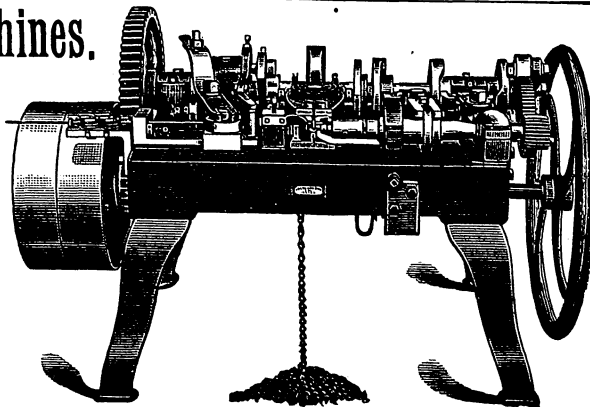
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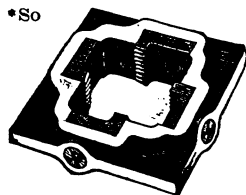
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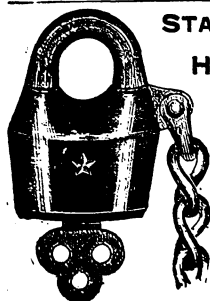


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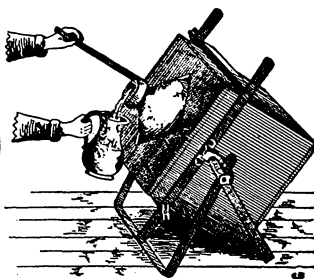


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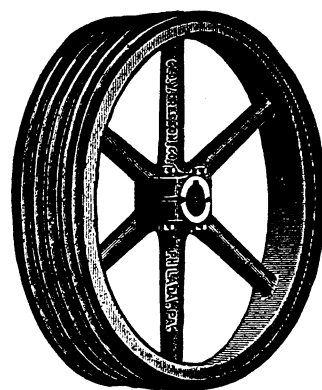
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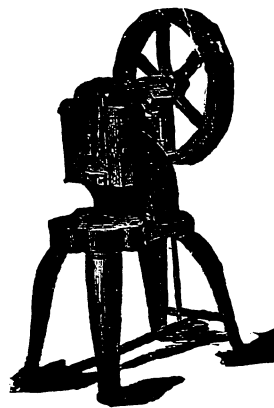
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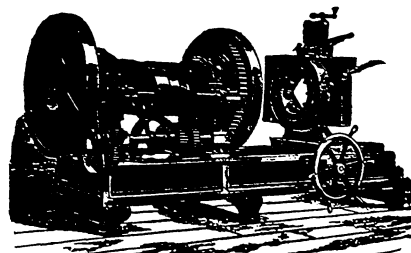


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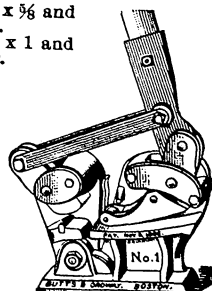
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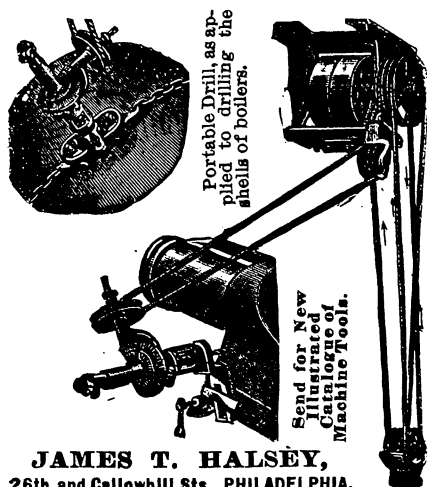
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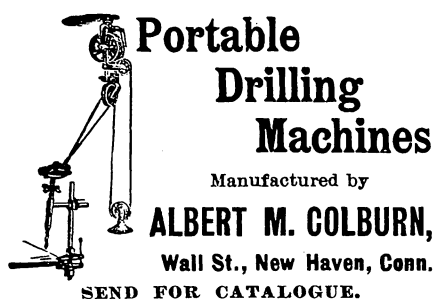
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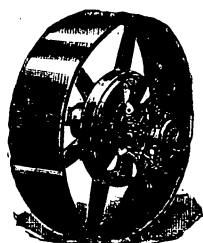


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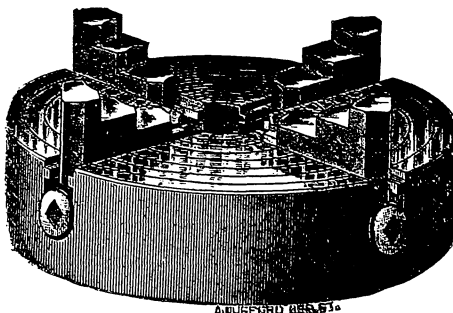
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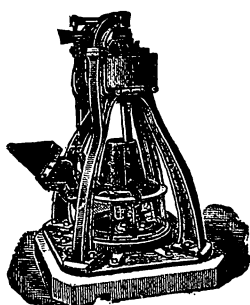
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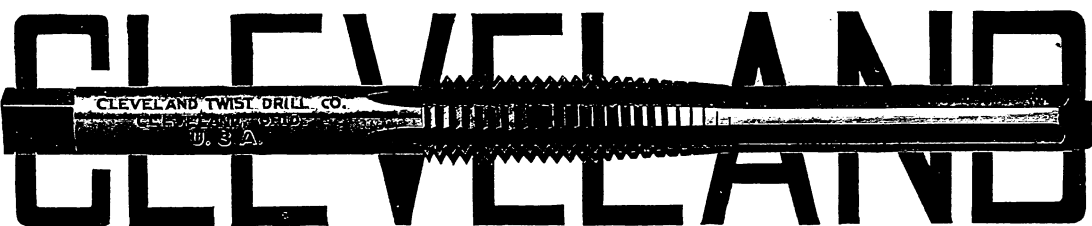
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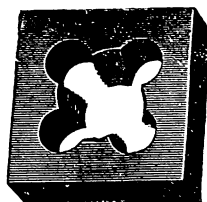
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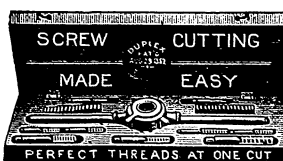
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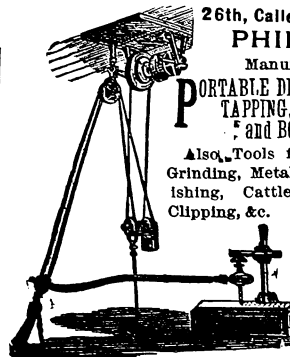
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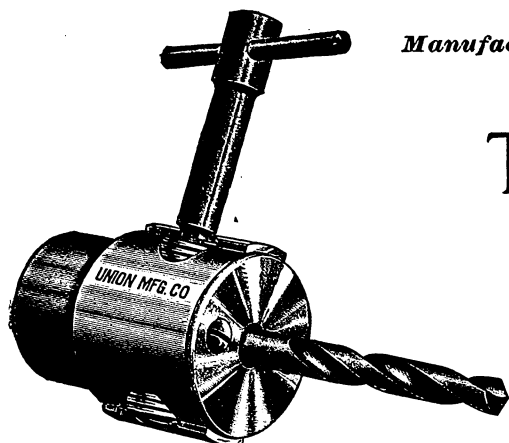
FOR PIPE.

# UNION MANUFACTURING COMPANY, NEW BRITAIN, CONN.

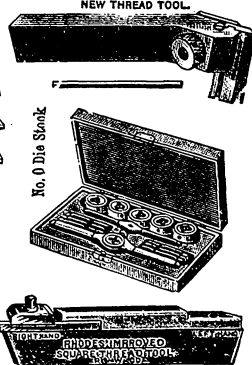
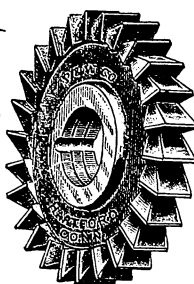
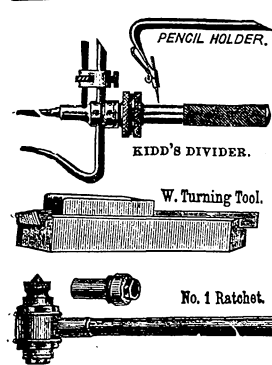
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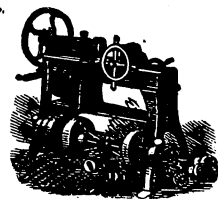
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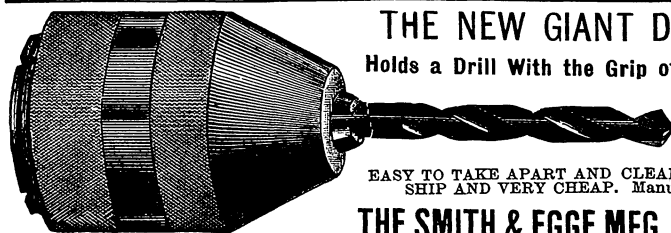
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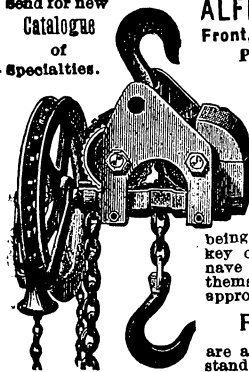
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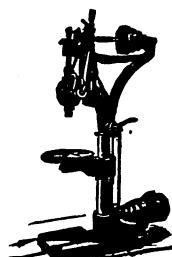


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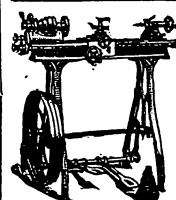
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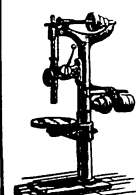
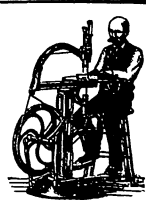
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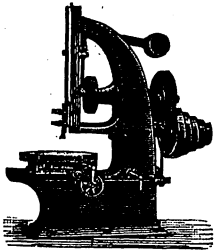
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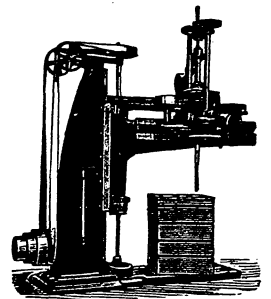
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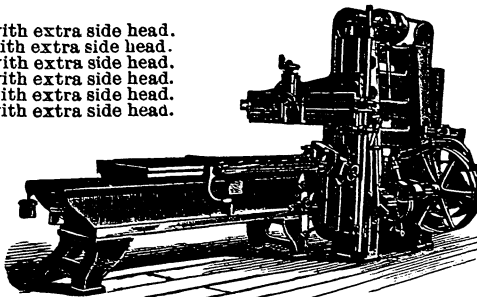
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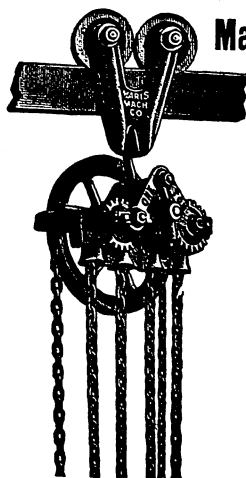


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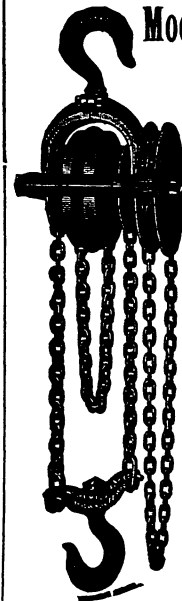
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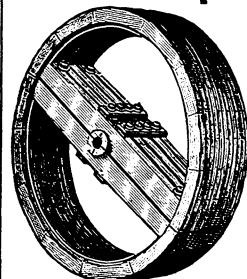
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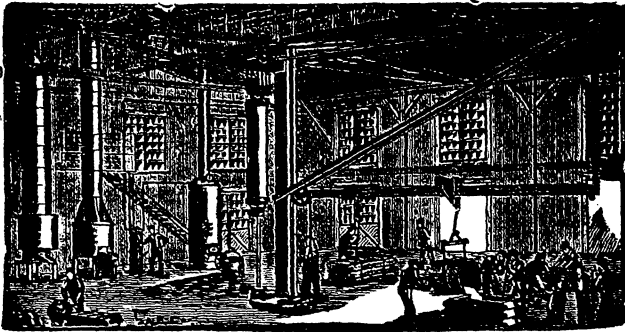
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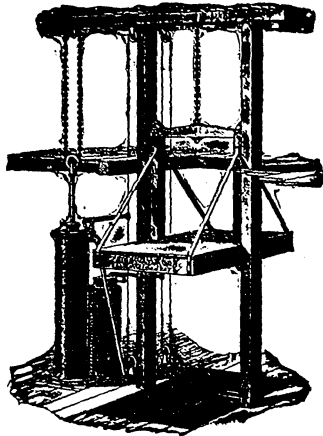
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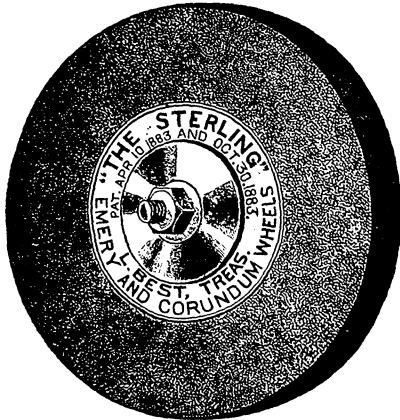
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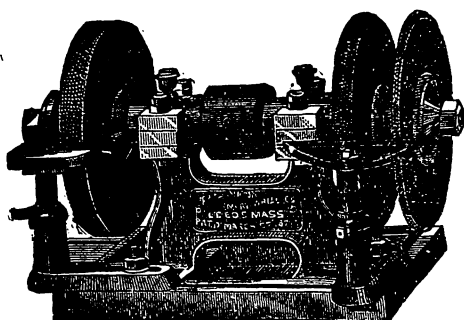
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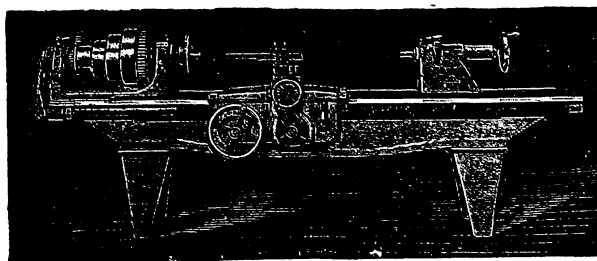
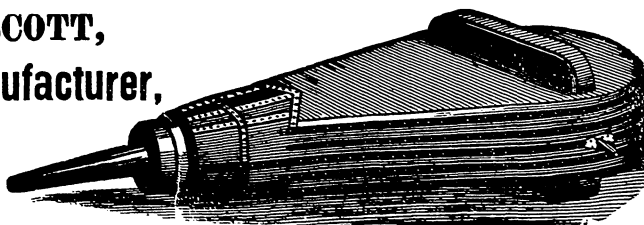
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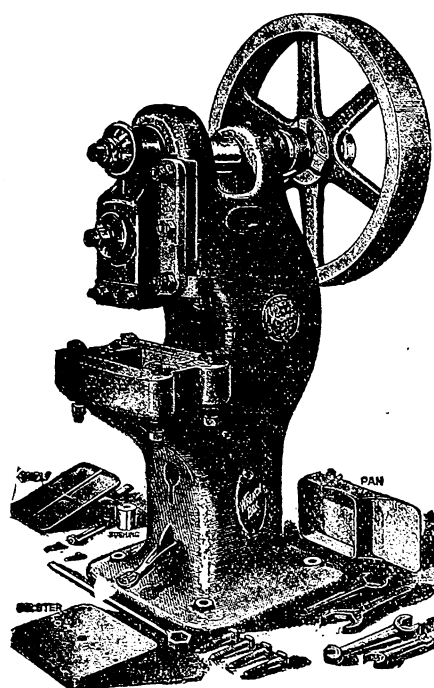
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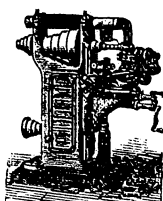
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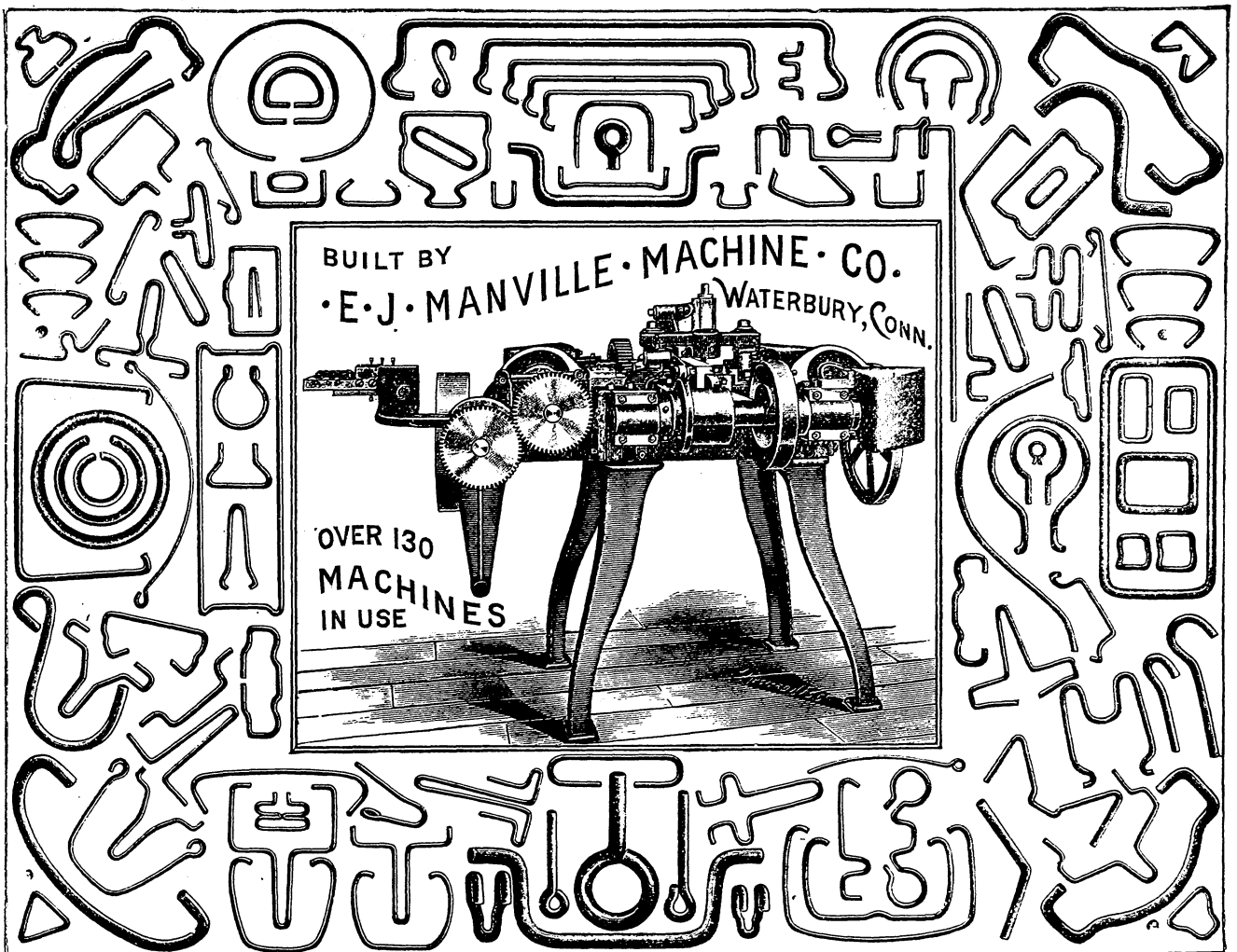
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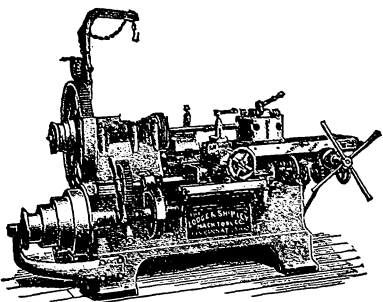
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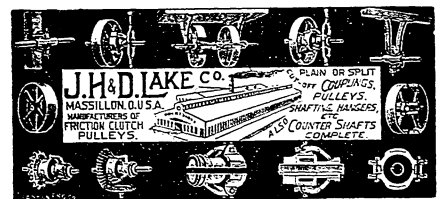
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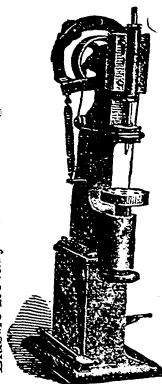
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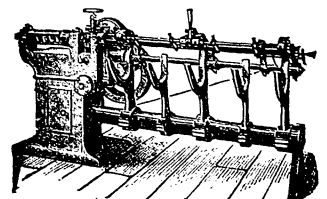


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## SECOND-HAND MACHINERY.

### ENGINE LATHES.

13 in. x 6 ft. Blaisdell. Good order.  
14 in. x 8 ft. Fitchburg. Al order.  
15 in. x 8 ft. Perkins. Al order.  
16 in. x 6 ft. New Haven. Fair. Cheap.  
18 in. x 7 ft. Bridgeport. Good order.  
16 in. x 8 ft. Ames. Good order.  
18 in. x 8 ft. Putnam. Al order.  
20 in. x 8 ft. " " " "  
20 in. x 8 ft. Rowland. " " " "  
20 in. x 7 ft. Steam Engine Co. Good order.  
24 in. x 12 ft. Putnam. Al order.  
30 in. x 14 ft. Improved Style. Al order.  
38 in. x 13 ft. " " " "

### PLANERS.

35 in. wide, 7 ft. Hewes & Phil. Good. Cheap.  
30 " " 8 ft. Pond. Al order.  
24 " " 8 ft. Freeland. Good. Cheap.  
21 " " 4 ft. Whitcomb. Good order.  
20 " " 4 ft. New Haven. Al order.  
15 " " 3 ft. Screw. Good order.

### SHAPERS.

6 in. Stroke, Crank. Good. Cheap.  
8 in. " " Gould. Good.  
12 in. " " Prentiss. Al order.  
15 in. " " Improved.  
15 in. " " Friction, Hendey. Good.  
Upright Drill, 20 in. Wheel feed. Al.  
" " 24 in. Complete. Ames. Good.  
" " 40 in. New Haven. Al.

Radial Drill, 6 ft. Arm. Good order.  
Milling Machine. Lincoln. Good order.  
Screw Machine. No. 1. "Brown & Sharpe." Wire feed.  
" " No. 1. "Garvin." Auto. Chuck.  
" " 1 1/2 in. hole. "Niles." Complete.  
Upright Boring and Turning Mill, 38 in. Al.  
Vertical Turret Chucking Mch., No. 2. B. & S.  
Bolt Cutters and Pipe Cutters.  
Punch Presses, Power and Foot.  
Nickel Plating Outfit complete. Good as new.  
Wire Straightening and Cutting Mch. "Add."

**J. J. McCabe,**

14 Dey Street, - New York.

Successor to E. P. BULLARD'S N. Y. Machinery Warerooms.

## For Sale Cheap.

Special lot of  
**NEW ENGINE LATHES,**  
ANY LENGTH OF BED.

Sizes 13, 15, 17, 20 and 22 in.

### ADDRESS

**Draper Machine Tool Co.,**

Successors to

**LATHE & MORSE TOOL CO.,**

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### WANTED.

Responsible parties to manufacture and sell on royalty, a cheap portable steel or iron **CULVERT BRIDGE**; it is adapted to all small streams, runs, etc., in roads, streets, **RAILROADS**, etc.; improved roads is the order of the day; use this bridge, put it below the level of the road, cover it over and thus prevent jarring and wear and tear of vehicles, etc. Apply to  
**W. A. NICHOLS,**  
Girard Building, Philadelphia, Pa.

### STEAM PUMPS FOR SALE.

We have on hand  
One new Worthington Pump, 7 1/2 x 4 1/2 x 10.  
Also two second-hand Pumps, in good order.  
One Smith Vaile, 6 x 4 x 6.  
One Knowles, 6 x 3 1/2 x 6.

**HOOKE-COLVILLE STEAM PUMP CO.**  
St. Louis, Mo.

Send for descriptive catalogue of Hooker Pumping Machinery.

### FOR SALE.

1 each Garvin No. 2 & No. 4 Milling Machines, 2d hand.  
1 Pratt & Whitney Lincoln Miller No. 3, 2d hand.  
" " 19 x 6 Engine Lathe, " " "  
1 G. A. Gray 19 x 8 Engine Lathe, " " "  
1 McMahon 17 x 8 Engine Lathe, 2d hand.  
1 Dietz & Gang 22 x 8 Engine Lathe, 2d hand.  
1 New Haven 28 x 8 " " "  
1 Dietz & Gang 40 in. Radial Drill, " " "  
1 each 20 in. Lever and Wheel and Lever Drills,  
1 Baker Bros. Universal Saw Bench. new. [new.  
1 each Lodge & Davis 16 in. and 20 in. Shaper, new.  
**THE LODGE & SHIPLEY MACHINE TOOL CO.,**  
107-113 Culvert St., Cincinnati, Ohio.

### FOR SALE.

Fitchburg Automatic Vertical Engine, 14 in. x 14 in.  
Wright Poppett Valve Engines, 16 in. x 36 in. and 12 in. x 32 in.  
F. McSWEGAN & SONS,  
Dover St. and Franklin Square, New York.

## BARCAINS.

Second-hand Machinery. Good Condition.

1 2500-lb. Double Frame Steam Hammer. Fdk. Miles.  
1 Planer 32 in. x 32 in. x 11 ft. Double head.  
1 260-lb. Justice & Shaw Dead Stroke Hammer.  
1 36 in. Boring Mill. Ed. Harrington & Son.  
2 Bement Milling Machines.  
1 Niles Screw Machine No. 2.  
2 Small Crank Planers, 18 x 16 x 24 inches.  
28 in. Schumacher Drill Presses, B. G. & P. F.  
1 40 in. Schumacher Drill Press, B. G. & P. F.  
1 48 in. Drill Press, B. G. & P. F.  
1 Power Punch; capacity, 1/2 in. hole in 1/4 in. iron.  
Throat 6 in. Parker, Snow & Co.  
1 20 in. x 48 in. People's Works Horizontal Engine.  
6, 8, 10, 15, 25 and 40 H. P. Hoisting Engines.  
1 20 H. P. Eddy Electric Motor, 220 Volts.  
1 50 H. P. Locomotive Boiler. Warden Mfg. Co.

**L. F. SEYFERT'S SONS,**

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## METAL WORKING MACHINERY.

All kinds.

NEW AND SECOND HAND.

## 600 Machine Tools in Stock.

Send for lists of Second-hand Machinery and Secure Bargains.

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PLANER, 24 in. x 20 in. x 5 ft. table. Good order \$150.00  
PLANER, 30 in. x 30 in. x 6 ft., with chuck.  
Good order ..... 200.00  
Lathe, 30 in. x 18 1/2 ft. Excellent order ..... 450.00  
38 in. x 24 ft. Bk. G'd. Sc. Cut'g Gleason Lathe.  
Good order ..... 475.00  
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Power Punch Presses ..... 375.00 and upward.  
**AMER. TOOL WORKS,** Cleveland, O.

## SECOND-HAND MACHINISTS' TOOLS.

1 Planer, planes 15 ft. 42 in. x 42 in.  
1 Planer, planes 6 ft. 32 in. x 25 in.  
1 Planer, planes 8 ft. 24 in. x 24 in.  
1 Planer, planes 5 ft. 24 in. x 24 in.  
1 Planer, planes 4 ft. 24 in. x 24 in.  
1 Crank Planer, 2 ft. 18 in. x 12 in. Al.  
1 Engine Lathe, 18 ft. bed, 32 in. swing, for Boring and Turning.  
1 Engine Lathe, 20 ft. bed, 60 in. swing, old style, [cheap.  
1 17 ft. 18 in. Lathe.  
1 10 ft. 17 in. Lathe.  
3 6 ft. 14 in. Blaisdell Lathes.  
2 6 ft. 15 in. Wood & Light Lathes.  
1 Pratt & Whitney Cushioned Hammer.  
1 475 lb. Drop Hammer, Merrill Pattern.  
1 No. 21 Bliss Press.  
2 20-in. Wheel and Lever Feed Drills.  
1 28 in. Upright Plain Drill. Cheap.  
1 1 H. P. Shipman Engine.  
And various other tools.

**NEW YORK MACHINERY DEPOT,**  
Bridge Store No. 16, on Frankfort St., New York.

## FOR SALE OR HIRE.

Engines with Cylinders 26 in. x 48 in. and smaller.  
Portable, Tubular and Vertical Boilers of all sizes.  
13 1/2-yard 3-ft. gauge all around Dump Cars.  
7 Narrow Gauge and 2 Standard Gauge Locomotives.  
1 Large Worthington Duplex and other Pressure Pumps. New and Second hand.  
Hoisting Engines and Grinding Pans.  
Rail, Sheet and Clipping Shears.

**THOMAS CARLIN'S SONS,**  
Allegheny, Pa.

FOR

## MACHINERY

ADDRESS US.

**Pennsylvania Mch. Co., Ltd.,**  
PHILADELPHIA, PA.

## Machinery,

Second-Hand and New, on Hand.

No. 4, 3, 2 Stiles Punch Presses.  
No. 1 1/2 and 0 Fowler Punch Presses.  
No. 1 and 2 3-Screw Machines, Pratt & Whitney.  
No. 1 Profiling Machine.  
No. 3 Hand Miller.  
15 x 5 Eng. Lathe, Taper Attach. " "  
16 x 5 x 6 Eng. Lathe, Bridgeport Mch. Tool Wks.  
200 lb. Drop Hammer, Bliss.  
Magnetic Separating Machine, Dynamo for Electroplating, Shaping, Planing, Slotting Machines, all Sizes.  
Engine Lathes from 11 inch Swing to 90 inch Swing.  
Drill Presses, Regular, from 10 to 44 inch Swing.  
" Radial, H. & Jones, 48  
Gang Drills, 2 Spindle and 4 Spindle.  
Lot of Special Drills for Butt Drilling.  
Special Butt Milling Machine.  
No. 12 Turret Lathe, 3 1/4 inch hole, Jones & Lamson.  
No. 12 " 24 inch Swing by 8 ft. Bed, Am. T. & Mch. Co.  
Lot of Polishing Mch., Leather Covered Wheels, etc. Belting, Pulleys, Engines, etc., etc.

**Boiler Shop Outfit of Machinery.**

Send for our latest list or state what is required.

Warehouse, 511 & 513 West 13th St.  
Office, 120 Broadway, New York.

**Geo. Place Machine Co.**

## —ONE GONE;— TWO ARE LEFT.

Last week we offered 1 100 H.-P. and 2 80 H.-P. **TUBULAR BOILERS**; the 100 H.-P. has been **SOLD**. The 2 80 H.-P. remaining are alike, are 60 in. diameter by 16 ft. long, have 38 1/2 in. tubes, full arch fronts, and fitted with **McCLAVE GRATES** and Blowers. Are in perfect condition.

**THE SCRANTON SUPPLY & MACHINERY CO.,**  
Scranton, Pa.

## For Sale, Very Low for Cash.

500 tons Relaying Steel Street Rails, side bearing, 35 to 47 lb. sections. Also 65-lb. Steel T's.

**WM. H. PERRY & CO.,** Providence, R. I.

## FOR SALE.

2 Stokes & Parrish 7 in. x 9 in. Hoisting Engines.  
3 No. 7 Knowles Pumps.  
1 Worthington Duplex Pump, 10 x 6 x 10 in.  
Lot 30 and 36 in. Plain Cylinder Boilers.  
Lot 1 Beams, Stacks, &c.  
At Merion Furnaces, West Conshohocken, Pa.  
Apply for particulars to  
**POULTERER & COMPANY,**  
No. 26 Bullitt Building, Philadelphia, Pa.

## FOR SALE.

1 Engine Lathe, 24 in. swing x 25 ft. bed. Modern. First-class condition.  
1 Lincoln Miller. Good order.  
1 3 in. Cutting-off Machine. Nearly new.  
1 No. 1, No. 2 and No. 8 Root's Blower.  
Prices very reasonable.

**COOKE & CO.,**

163 and 165 Washington St., New York.

## FOR SALE.

Hand-power traveling crane, 16-foot span, with racking gear and brake. Low price.  
Terms cash. **THE SARGENT CO.,**  
Chicago, Ill.

## WANTED.

A second-hand 8 in. Guide Train; must be in first-class condition. Address, giving full description, price, etc., **COMPANIA INDUSTRIAL MEXICANA**, Chihuahua, Mexico.

# Great Bargains. Boilers AND Engines

**Must be Sold and Removed.**

16 in. x 30 in. Horizontal Engine.  
18 in. x 36 in. Horizontal Engine.  
24 in. x 36 in. Horizontal Engine.  
19½ in. x 48 in. Beam Engine, with Knowles Condenser.

Write us for what you want.

**LOVEGROVE & CO.,**

Third and Quarry Sts., Philadelphia, Pa.

## SECOND-HAND MACHINERY.

One American Tool Co.'s No. 2 Cabinet Turret Lathe, with slide rest; in fine order.  
One Pratt & Whitney 36-in. Gap Chucking Lathe.  
One Pratt & Whitney No. 3 Lincoln Milling Machine.  
One Iron Planer, 52 in. wide, 44 in. high, 12 ft. long, with two heads.  
One Springfield Universal Grinding Machine No. 3, swing 18½ in. over the ways and take 6 ft. between centers. Has been used but a very few times and is practically new.  
One L. W. Pond Gear Cutter, to cut gears 36 in. diameter, 5 in. face, also arranged for cutting beveled gears.

**HILL, CLARKE & CO.,**  
156 Oliver St., Boston, Mass.  
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## WE ARE OFFERING BARGAINS

from the equipment of the United Electric Traction Company's Works of Marion, N. J., comprising:

Engine Lathes, from 14 in. to 48 in. swing.  
Band Lathes, from 10 in. to 20 in. swing.  
Planers, from 24 in. x 5 ft. to 42 in. x 12 ft. Shapers, from 15 in. to 20 in. stroke.  
Drill Presses, all sizes up to 24 in. swing.  
Milling Machines, Plain and Universal.  
Brown & Sharpe Screw Machines.  
1 Large Newton Slotting Machine.  
1 Large Ford Mach. Tool Co.'s Radial Drill Press.  
8 Gould & Eberhardt Automatic Gear Cutters, 36 in., 48 in. and 60 in.  
1 Betts Machine Co. Large Horizontal Boring Mill.  
2 Large Bliss Power Presses.  
1 10 H.-P. Baxter Engine, with 15 H.-P. Boiler, complete. As good as new.  
Also Tool Grinders, Die Sinkers, Tapping Machines, Bolt Cutters and Large Pattern and Blacksmith Shop Equipments.  
These tools are in good order and of the very best makes in this country. They will be sold at remarkably low prices.  
Call at our salesroom and inspect them, or write for complete descriptive circular and price-list.

**THE GARVIN MACHINE CO.,**  
Laight and Canal Sts., New York.

### SOME BARGAINS HERE.

1 Hendey Shaper, 15 in. stroke, Imp. vise.  
1 14 x 6 Screw Cutting Engine Lathe; new.  
1 5 in. hole in Turret Screw Machine and Counter, \$25.  
2½ Hendey Cutting-off Machine. New.  
1 3-Spindle Garvin Drill Press, used 1 month.  
100 H.-P. Woodbury Engine. 2d-hand Good order.  
2 50 H.-P. Woodbury Boilers. Good order.  
2 75 H.-P. Woodbury Boilers. Good order.  
1 20 H.-P. Woodbury Engine. 2d-hand.  
Also variety of Engines, Boiler Pumps, &c.  
And other machinery, new and second hand. Write for prices. **Machinery Supply Company,**  
39, 41 and 43 Central Ave., Rochester, N. Y.

### WANTED.

Second-hand Power Press, size Bliss No. 20 or 21. Price must be low for cash.  
**ROBLEY & BRUNDAGE,**  
142 Chambers St., New York.

1 100 H.-P. Horizontal Tubular Boiler.  
2 65 H.-P. Horizontal Tubular Boilers.  
2 125 H.-P. Portable Boilers.  
1 90 H.-P. Portable Boiler.  
1 60 H.-P. Portable Boiler.  
1 75 H.-P. Harrison Boiler.  
1 50 H.-P. Galloway Boiler.  
2 250 H.-P. Hazelton Boilers.  
1 75 H.-P. 15½ in. x 24 in. Horizontal Engine.  
1 50 H.-P. 12 in. x 24 in. Wright Engine.  
1 20 H.-P. 9 in. x 12 in. Erie Engine.  
And many others.

**THOS. P. CONARD,**

206 Walnut Place, Philadelphia.

## FOR SALE.

1 140 H.-P. Hor. Tub. Boiler. A1.  
**BERRYMAN HEATER**, 44 in. dia., 10 ft. high.  
36 x 48 Corliss Engine.  
Lighthouse Surface Condenser, 1100 sq. ft. cooling surface.  
12 in. Centrifugal Pump, 60 ft. hose.  
**MARVIN BRIGGS,** 12 Broadway, N. Y.

## FOR SALE.

**ELECTRIC LIGHT PLANT** (used 6 months).  
1000 light Mather Dynamo.  
125 H.-P. Dick & Church Compound Engine.  
2 75 H.-P. Steel Boilers.

**MARVIN BRIGGS,** 12 Broadway, N. Y.

## SECOND-HAND MACHINERY.

2 11 in. x 5 ft. Reed Engine Lathes.  
2 11 in. x 5 ft. Prentice Lathes.  
2 12 in. x 5 ft. Young Speed Lathes.  
2 13 in. x 5 ft. Ames special feature Lathes.  
2 15 in. x 6 ft. Reed Engine Lathes.  
1 15 in. x 8 ft. Young Lathe.  
1 18 in. x 6 ft. Young Lathe.  
1 16 in. x 6 ft. Perkins Lathe.  
2 16 in. x 6 ft. Blaisdell Lathes.  
1 16 in. x 6 ft. Flather Lathe.  
1 18 in. x 8 ft. New Haven Lathe.  
1 18 in. x 8 ft. Dustin Lathe.  
2 20 in. x 6 ft. Bullard Lathes.  
1 26 in. x 10 ft. Dustin Lathe.  
2 20 in. x 8 ft. Bullard Lathes.  
1 20 in. x 10 ft. Bullard Lathe.  
1 26 in. x 13 ft. New Haven Dexter Pattern Lathe.  
1 Bullard Turret Lathe.  
2 Bullard No. 7 Over-riding Arm Plain Millers.  
2 Bullard No. 7 Lincoln Plain Millers.  
1 B. & S. No. 1 Universal Lathe.  
1 Brainard Heavy No. 6 Lincoln Pattern Miller.  
1 Garvin No. 2 Miller and Screw Slotted.  
1 No. 3 Garvin Plain Miller.  
1 38 x 18 ft. N. Y. S. E. Lathe. Also large stock of New Tools.

1 Garvin No. 4 Rack Feed Miller.  
1 Brainard No. 15 Universal Miller.  
2 Brainard No. 5 Universal Millers.  
1 Blaisdell 30 in. Single Spindle Drill.  
1 Wilder Punch Press.  
1 Grindstone and Frame.  
1 Garvin one-spindle Profiling Machine.  
1 Garvin No. 2 three-spindle drill.  
1 Garvin No. 3 four-spindle Drill.  
1 Garvin No. 4 four-spindle Drill.  
1 Garvin No. 2 Wire Feed Screw Machine.  
1 Garvin No. 2 Plain Screw Machine.  
1 Garvin Small Gear Cutter.  
1 Dustin 18 in. wheel feed one-spindle Drill.  
1 Brainard Universal Cutter Grinder.  
1 Band Saw.  
1 Diamond No. 3 Emery Grinder on column.  
1 Diamond Polishing Head.  
1 Bullard 15 in. stroke Shaper.  
1 16 in. Smith & Mills Shaper.  
1 24 in. x 24 in. x 6 ft. New Haven Planer.  
1 10 ft. Boring Mill.  
1 8 ft. 4 in. Boring Mill.  
1 76 in. x 60 in. x 13 ft. Planer.  
1 48 in. Car Wheel Borer.  
1 Axle Lathe.

**NILES TOOL WORKS CO.,**  
136 & 138 Liberty St., N. Y. City.

## MACHINERY, TOOLS, &c.

**IN STOCK, LARGE LINE OF NEW AND SECOND-HAND engines, boilers and machinist's tools for sale or exchange. Below are some special bargains:**  
20 H.-P. to 60 H.-P. plain slide valve horizontal engines.  
2 H.-P. to 50 H.-P. vertical engines.  
Power shears, 1 in. iron, 36 in. Gap.  
4½ in. Pratt & Whitney cut-off machine.  
20 milling machines (Bement's).  
6 H.-P. and 10 H.-P. hoisting engines with boilers.  
4 50 H.-P. portable boilers.  
10 H.-P. to 100 H.-P. horizontal and vertical boilers.  
20 screw-cutting lathes of different sizes.  
Several rod-feed turning lathes.  
6 in., 12 in. and 15-in. shapers.  
24 in. and 36 in. planers.  
44 in. radial drill, 1¼ National bolt cutter.  
No. 3 Fowler press, 2 10 in. exhaust heads.  
25 lbs. Bradley and 10 lbs. Hotchkiss Hammers.

**FRANK TOOMEY,**  
131 N. Third St., Philadelphia, Pa.

4 3 H.-P. Vertical High Pressure Engines.  
2 5 H.-P.  
3 6 x 10 Horizontal Engines.  
2 8 x 12 "  
2 10 x 14 "  
8 5 H.-P. Gas Engines.  
5 10 H.-P.  
1 8 x 12 D. C. Hoisting Engine.  
3 Rock Crushers.

**H. H. MANSFIELD,**

126 Liberty St., New York

## CORLISS

and other Automatic Engines, Slide Valve Engines  
Boilers, Steam Pumps, Tanks, &c., &c.

CORLISS, 10 x 20; 10 x 24; 12 x 36; 14 x 30, 16 x 42; 22 x 36; 22 x 48; 24 x 48; 28 x 60; 30 x 60; 30 x 72; Porter-Allen, 14 x 30; Brown, 16 x 42.  
**HIGH SPEED AUTOMATIC**, 12½ x 15; 14 x 16; 12 x 18; 11 x 20; 10½ x 12; 9½ x 12.

**HORIZONTAL SLIDE VALVE**, 28 x 32; 18 x 36; 16 x 48; 18 x 36; 14 x 24; 13 x 24; 12 x 24; 10 x 24; 12 x 18; 10 x 14; 10 x 12, and others.

**VERTICAL SLIDE VALVE** 28 x 30; 20 x 24; 13 x 16; 13 x 12; 10 x 12; 10 x 10; 9 x 9; 8 x 10; 7 x 9; 7 x 7; 6 x 6.

**ASSORTMENT OF BOILERS**, Horizontal, 6 x 16; 5½ x 16; 5 x 16; 4 x 14; 4 x 12, and others.  
**LOCOMOTIVE BOILERS**, 15, 30, 45, 50, 60, 70, 100 and 150 H.-P.

**ASSORTMENT OF STEAM PUMPS**, 1000 gl. Duplex Fire Pump also Brennan Crusher, Bogardus Mill, Rock Drill, Burr Stone Mill, Fan Blowers, Platform Scales, Wood Planer, Rendering Tank, Open Tanks, Hoisters, Berryman Heaters, 600-ton Hydraulic Press, Boiler Rolls. Also some Large Steel Boilers, new, below market price. Send for catalogue.

**GEO. M. CLAPP,**  
74 Cortlandt St., New York.

## ROLLING MILL OUTFIT.

**For Sale, the Following Machinery and Tools, in good order, for immediate or future delivery.**

For further particulars apply to the undersigned:

1 Horizontal Low Pressure Engine, 39 in. x 72 in.  
2 Fly Wheels, 24 ft. diameter, each weighing 53 tons.

1 Vertical Engine, 7 in. x 16 in.  
2 Horizontal Engines, 14 in. x 24 in.  
1 2 High 30 in. train, complete.  
1 3 High 30 in. train, complete.

The above trains will roll 90 in. plates; also a lot of extra rolls, all made by Garrison & Co.

1 Roll Turning Lathe made by Garrison, will take in 12 ft. roll and turn up to 40 in.

1 Guillotine Shear, Engine attached, made by Morgan, Williams & Co., knife 104 in. long, will cut 1 inch steel plates.

2 Plate Straightening Machines.

1 Adams' Plate Shear, 48 in. throat, 28 in. knife, will cut up to ¾ in. Plate.

2 Heavy Upright Plate Shears, 12 in. throat, 22 in. knife, will cut up to 1¼ in. Plate.

2 Bar Shears.

1 Rotary Shear.

1 Fairbank's Testing Machine, with counter-shaft, or can be worked by hand power.

4 Large Iron Cranes, improved pattern, each about 25 tons capacity.

8 Small Cranes, also charging Cranes and Portable Cranes on car for handling Ingots.

Blake rump, 14 in. steam, 16 in. water.

2 Worthington Duplex Pumps.

1 Blake Pump, No. 7.

1 Sturtevant Blower, No. 12.

3 Tubular Boilers, with Fronts and Attachments.

1 No. 7 Brush Light Machine, 15 Double Lamps.

Also Furnaces, Cylinder and Flue Boilers, Buggies, Shafting, Pipe Stacks, etc., etc., and other tools, etc., belonging to above plant.

**MATTHEW GILL, Jr.,**  
308 Walnut St., Philadelphia, Pa.

## !!! FOR SALE !!!

**BAKER BLOWERS**, Nos. 1, 4½, 5, 6 and 7.

**ROOT BLOWERS**, Nos. 1, 2, 3, 4, 5, 6 and 7.

Sturtevant Blowers, Nos. 4, 5, 6, &c.

1 Corliss Band Wheel, 12 ft. x 24 in. in halves.

A Variety of Machinery. Such as Boilers, Engines, Pumps, Crushers, &c., very cheap.

Do you want to buy or sell Machinery? If so, write

**C. R. BIGELOW, Machinery Expert,**

45 Dey St., New York City.

## FLY WHEEL.

For quick sale, a perfect 20 ton Fly Wheel, 16 feet diameter, rim 15 in. x 15 in., in 8 sections, made by A. Garrison & Co. Also, 10 in. forged iron shaft for same.

**G. W. SCHULTZ & CO.,**  
308 Walnut St., PHILADELPHIA.

## FOR QUICK SALE.

One Otis Steam Shovel in good condition.  
Two 12 ton 3-ft. Gauge Locomotives.  
Two Standard Gauge Saddle Tank Locomotives.  
20 Dump Cars, 3-ft. Gauge, 3 yd. Capacity, Side Dump.

300 tons Mill Cinder, &c.

Also Pig Iron, Muck Bars, Bar Iron and Steel

Billets, Scrap, &c. We are always in the market to buy and sell Equipment and Scrap.

**G. H. SIBELL & CO.,**

62 and 64 Michigan Ave., Chicago, Ill.

**SALE OF VALUABLE PROPERTY**  
of the corporation known heretofore as The Albany Stove Company. Whereas, by order of the Supreme Court of the State of New York, granted in the City of Albany, N. Y., on the 10th day of October, 1893, the undersigned, receiver of the assets and effects of the corporation known heretofore as The Albany Stove Company, was directed to offer for sale the following described property, viz.: The real estate and buildings owned by the said corporation "The Albany Stove Company," situated on Tivoli street, in the City of Albany, N. Y., being the same premises used by the said corporation in carrying on its business of manufacturing stoves and iron castings, and is the same real estate conveyed by Eugene Van Rensselaer and others, as executors, etc., to The Capital Co-operative Foundry Company, by deed dated October 15, 1869, recorded in Albany County Clerk's office, December 15, 1869, in Book No. 228 of Deeds, on page 241, and by Van Rensselaer Land Company to Albany Stove Company by deed dated January 10, 1890, recorded January 14, 1890, in Book No. 412 of Deeds, on page 318, together with the machinery, tools and implements used in carrying on the business above referred to.

Now, therefore, in pursuance of said order, the undersigned offers for sale to the highest bidder the property above described.

All bids to be sealed, and must be distinctly marked on the envelope in which they are enclosed, "Bids for property of the Albany Stove Company," and addressed and delivered to the undersigned at No. 82 State street, Albany, New York, on or before the 17th day of November, 1893. The right to reject any and all bids is hereby reserved, and sale can only be completed upon order of the court.

Bids will be opened by the receiver at the office of Francis H. Woods, No. 116 State street, Albany, New York, on Saturday, November 18, 1893, at 10 A. M. Terms, purchase price to be paid within twenty days after notification of acceptance of bid.

Dated October 11th, 1893.

JOHN GUTMANN,

Receiver of The Albany Stove Company.

**SALE OF VALUABLE PROPERTY**  
of the corporation known heretofore as The Albany Stove Company. Whereas, by order of the Supreme Court, granted in the City of Albany, N. Y., on the 10th day of October, 1893, the undersigned, receiver of the assets and effects of the corporation known heretofore as The Albany Stove Company, was directed to offer for sale the following described property, viz.: The patterns, shop rights and flasks owned by the said corporation, and being the patterns, shop rights and flasks for the "Home Oak" parlor and range, "Yale" cook, "White Oak," "Art Yale Range," "Rose" range, "Oneida," and for other castings, formerly manufactured by the said corporation, a more particular description of which will be given on application to the undersigned.

Now, therefore, in pursuance of said order, the undersigned offers for sale to the highest bidder the property above described.

All bids to be sealed and must be distinctly marked on the envelope in which they are enclosed, "Bids for property of The Albany Stove Company," and addressed and delivered to the undersigned, at No. 82 State street, Albany, N. Y., on or before the 17th day of November, 1893.

The right to reject any and all bids is hereby reserved, and sale can only be completed upon order of the court. Bids will be opened by the receiver at the office of Francis H. Woods, No. 116 State street, Albany, New York, on Saturday, November 18th, 1893, at 10 A. M.

Terms: Purchase price to be paid within twenty days after notification of acceptance of bid.

Dated October 11th, 1893.

JOHN GUTMANN,

Receiver of The Albany Stove Company.

## FOR SALE, CHEAP.

400 tons of 60-pound, 200 tons 52-pound and 400 tons of 30-pound second-hand Steel Rails, suitable for relaying. For prices, etc., address

J. H. RICHARDSON & CO.,

Pittsburgh, Pa.

## FOR SALE.

2 Double Deck Boilers about 40 H. P. each, cheap. Hoisting Engine. Cylinder Boilers for Stacks, 30, 40 and 42 in. diameter. Round and Square Iron Tanks. Book Binding Machinery. Smoke Stacks, light and heavy, all sizes. Large lot Cast and Wrought Scrap Iron on hand. Also Dealers in Metals.

BUSSENIUS & CUNLIFFE,  
12th and Washington Ave., Philadelphia.

## FOR SALE.

CRANK and  
GEARED **SHAPERS.**

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

## PITTSBURGH SALES AGENCY,

J. H. HILLMAN, Manager,

No. 8 Wood St.,  
Pittsburgh, Pa.,

IS NOW ENGAGED IN THE

## Sale AND Reorganization

—OF—

## Manufacturing Plants,

INCLUDING

Blast Furnaces, Rolling Mills, Machine Shops, Foundries, Agricultural Works, and Manufacturing Establishments Generally.

Examinations and Reports

on Properties.

References on Application.

## Second-Hand Rails FOR SALE.

In lots to suit, and ready for delivery.

2000 tons 60 lb. Steel T Rails.  
800 tons 54 lb. Steel T Rails,  
400 tons 50 lb. Steel T Rails.  
550 tons 50 lb. Iron T Rails.  
600 tons 45 lb. Iron T Rails.  
2000 tons 40 lb. Steel T Rails.  
600 tons 30 lb. Iron T Rails.  
150 tons 30 lb. Steel T Rails.  
200 tons 25 lb. Steel T Rails.  
1700 tons Johnson Girder Rails, 38, 48, 52 and 66 lb. Rails.

All selected and in excellent condition for relaying and only slightly worn. For prices and particulars apply to

JOSEPH JEWKES,

Railway Equipment, Pittsburgh, Pa.

## Trustee's Sale of Machine Shop Equipment.

Lathes, 52 in. swing by 41 ft., 54 in. swing by 22 ft., 30 in. swing by 22 ft. One Pit Lathe. Planers, 64 in. wide by 20 ft., 36 in. wide by 13 ft. Drills, 30 in. upright, 5 ft. post, 20 in. post. Engines, 5 new and 7 second-hand, from 100 H. P. down.

Circular on application.

W. A. BOLE, Trustee,

Liberty Ave., cor. 25th St.,

Pittsburgh, Pa.

## WANTED.

Machinery to manufacture.—Machinery built of Wood and Iron, or all Iron only, wanted, same must be of real merit.

J. M. KRAMER & BRO. MACHINE WORKS,  
Maria Stein, Ohio.

## WANTED.

A second-hand Squeezer in good order and modern construction, with or without Engine. Name lowest price for cash. Address

"H."

Office of The Iron Age, 220 South 4th St., Philadelphia, Pa.

DON'T INVEST in expensive machinery or let a contract until you get our estimate for making novelties or parts. Our work on novelties or fine, difficult and accurate parts astonishes the trade. White metal work a specialty, and our results cannot be duplicated at the same cost. Write us. Sample on application. Inventions perfected. Secrecy and satisfaction guaranteed. THE H. H. FRANKLIN MFG. CO., Syracuse, N. Y.

## FLOOR PLATES.

FOR SALE.—A Superior Lot of Cast Iron Plates 2 ft. x 4 ft. They are made to avoid warping and cracking. Will sell in lots to suit.

MATTHEW GILL, JR.,

308 Walnut St., Philadelphia, Pa.

## TO LET

In the "IRON AGE" Building,  
FOR OFFICES OR STORES,  
96-102 Reade Street.

FIRST LOFT, 50 FEET FRONT.

THIRD LOFTS, 100 FEET FRONT.

To Let for Light Manufacturing Business,

Fourth and Fifth Lofts, 50 Feet Front.

Excellent Light, Elevator, Power and Steam Heat.

APPLY TO

WM. C. WALKER'S SONS,  
299½ Broadway.

## CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

## HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.  
Send for Catalogue.

149 Chambers St., New York

## WE ARE LOOKING FOR NEW NOVELTIES TO MANUFACTURE.

If this concerns you

please communicate with us at once.

THE BRIDGEPORT GUN IMPLEMENT CO.,

313-315 Broadway, New York.

## WE OFFER FOR SALE BALANCE OF STOCK OF IRON AND STEEL,

Consisting of Bar, Band, Hoop and Scroll Iron and Spring and Plow Steel, at

## 1 CENT PER LB.

About 40 tons in all.

List of sizes on application.

JOHN S. LENG'S SON & CO.,

4 Fletcher St. - - NEW YORK.

## Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

## MAHONING FOUNDRY AND MACHINE SHOP

Danville, Pennsylvania.

## Bicycle Manufacturing Plant For Sale.

Located in a prominent Western city and adapted to the manufacture of bicycles of any grade. Capital required, \$75,000 to \$100,000. For particulars address The R. M. Co., P. O. Box 31, Cincinnati, O.

## STEAM DERRICK FOR SALE.

We have purchased a complete Steam Derrick from a foundry recently assigned. The derrick originally cost nearly \$1200 to build. Will sell same for \$400 cash where it now stands. For further particulars address

**SWARTS IRON & METAL CO.,**  
551 to 557 So. State St.,  
CHICAGO, ILL.

## RELAYING RAILS FOR SALE.

We have about 60 tons of 56 pound Wrought Iron Rails from a coal mine track, suitable for relaying. Will sell cheap for cash. Address at once for particulars.

**SWARTS IRON & METAL CO.,**  
551 to 557 So. State St.,  
CHICAGO, ILL.

### Business Wanted.

A successful superintendent of large experience with leading Engine and Machine Tool builders would like to engage as partner in some manufacturing or engineering business. Has moderate capital, liberal education and excellent references. Address  
"W. W. R.," No. 1116,  
office of *The Iron Age*, 96-102 Reade St., New York.

### FOR SALE CHEAP.

In quantities to suit, 1000 feet of 2 1/4 in. four ply water hose, at 30¢ per foot, with couplings either to fit 2 in. wrought iron pipe, or thread to fit regular 2 in. hose coupling. Address

**REUTER & MALLORY,**  
22 Light St., Baltimore, Md.

## FOR SALE. HARDWARE STOCK

in Cleveland, O. Will invoice very near \$4500. A bargain. Write to

"M.," care E. S. Adams,  
office of *The Iron Age*, 312 The Cuyahoga, Cleveland, Ohio.

### TO RENT.

One floor in our brick and stone factory, 200 x 60 feet, with all modern improvements, land sufficient to erect additional buildings if required. Location most desirable in the city. Bicycle, Typewriter, Sewing Machines or any similar class of manufacturing could arrange most satisfactory terms to locate on this property.

**DIAMOND MACHINE CO.,**  
Providence, R. I.

### WANTED.

Practical Boiler Maker with small capital and business, to take interest in small shop. Fair business established and a good opportunity to an energetic man of ability. Applicants must be well recommended as to mechanical ability and moral character, and other things equal American preferred. Address

"W. B. & S.,"  
office of *The Iron Age*, 96-102 Reade St., New York.

## Locations for Factories.

The Industrial Department of the Chicago, Milwaukee & St. Paul Railway has charge of matters pertaining to the development of the territory traversed by the railroad and the directing of manufacturers to points best suited to their particular requirements.

Eight States are traversed by the 6,150 miles of the Chicago, Milwaukee & St. Paul Railway's tracks, namely: Illinois, Wisconsin, Northern Michigan, Iowa, Missouri, Minnesota, South Dakota and North Dakota.

The company is daily in touch with the people in its territory, and from the number and varied nature of the industries locating and springing up on the line, and its acquaintance with the natural resources, has the facilities at hand to promptly furnish manufacturers with reliable information as to locations adapted to particular industries.

**LUIS JACKSON,**

Industrial Commissioner,  
C., M. & St. P. R'y, 160 Adams Street,  
Chicago, Ill.

## LUXURY ON WHEELS.

The "Electric" trains of the Cincinnati, Hamilton & Dayton R. R. and "Monon" Route between Cincinnati and Chicago are provided with the latest product of the Pullman Co. built expressly for this service. There are 10 compartments in each car, which may be converted at will into complete drawing rooms, most beautifully and harmoniously decorated, lighted by the Pintsch gas system, and are positively the most modernly equipped sleeping cars in the world. This is the only line running Pullman Vestibule and Dining Cars between the cities named. THE World's Fair Route. See that your ticket reads C., H. & D. and Monon Route.

D. G. EDWARDS, G. P. & T. Agent,  
Cincinnati, O.

### FOR SALE.

A Rolling Mill, not far from Chicago; Cheap Fuel, Cheap Scrap; Good Machinery, comprising 9 in., 12 in. and 18 in. trains, in first-class condition. Can show a profit of \$7 to \$10 per ton on all iron made since mill has been in operation. Don't apply unless you mean business. Other engagements reason for selling. Address  
"S. F.," No. 1026,  
office of *The Iron Age*, 96-102 Reade St., N. Y.

**AN OLD ESTABLISHED** hardware house in New York, whose salesmen cover the entire United States, wants the sole agency of American manufacturers of Chains, Toilet Clippers, Locks, Files, Carpenters' Tools and similar articles. Address

"W. B. G.," No. 105,  
office of *The Iron Age*, 96-102 Reade St., New York.

### WANTED

Partner to take half interest in established hardware and house furnishing store in Baltimore, Md.; \$5000 required; want to increase stock is reason for selling. Address "HIRAM,"  
office of *The Iron Age*, 96-102 Reade St., N. Y.

### PARTNER WANTED.

A partner with \$8000 to engage in the Hardware business in the best city West of Chicago; business established and prosperous. Address "HARDWARE PARTNER," office of *The Iron Age*, 96-102 Reade St., New York.

### WANTED.

A second-hand Guide Mill Shear, one that will cut up to 1 1/2 inches square. Must be in good condition. Address "SHEAR," No. 368, office of *The Iron Age*, 96-102 Reade St., New York.

### WANTED.

To furnish reasonable estimates on specialties in light metal work.

**CLARK & COWLES,** Plainville, Conn.,  
Manufacturers of Clock Trimmings, Rivets, Springs, &c.

## Collections?

**ATTENTION!** Merchants and Manufacturers.—We collect your past due accounts. Do not let them remain too long upon your books. Our terms just and fair.

**THE HARDWARE BOARD OF TRADE, Ltd.,**  
4 and 6 Warren Street, New York.  
**JAS. H. GOLDEY, Treas.**

### FOR SALE.

Good stock of Hardware, invoice \$5,000, good store building with living rooms above, valued at \$2,500, in a good town in Southwestern Minnesota; only hardware store in the town; good established trade of \$15,000 a year. This is a rare chance to go into business. Address

**F. A. & A. J. MEACHAM,**  
Edgerton, Minn.

**EUGENE BISSELL, Auctioneer.**

**E. BISSELL, SON & CO.,**

Successors to  
**HAYDOCK & BISSELL,**  
WHOLESALE

**HARDWARE AUCTIONEERS,**

12 Murray St. and 15 Park Place, N. Y.  
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

### C. F. RICE,

206 So. Green St., - - CHICAGO.

Largest wholesale house in America for Mirrors of all kinds, Pictures, Mouldings, Frames, Brackets, Easels, Screens and kindred goods. Large illustrated catalogue sent to Dealers upon application.

## BLOWING ENGINE FOR SALE

Vertical pattern, with balanced steam slide valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in. 1 to 100 strokes per minute; engine new.

**JAMES LEFFEL & CO.,** Springfield, Ohio

### THE ROBERT W. HUNT & CO.

Bureau of Inspection, Tests and Consultation

Rails, Splices and Cars. Analytical and Physical Laboratories. Examination of Iron and Steel Works and advice on Processes.

General Office: The Rookery, Chicago. Branch Offices: Hamilton Building, Pittsburgh; 28 Chestnut St., Philadelphia; 30 Broadway New York.

## KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent Stamps for illustrated 16-page pamphlet.

**WOLCOTT & WEST,** Syracuse, N. Y.



The Scattergood

Time Record and

Pay Roll Book.

(Pat. Oct. 13, 1891.)

Address for Circular to

**HENRY W. SCATTERGOOD.**

23 Richmond St. Phila., Pa.

## IF YOU WANT

A NIAGARA DYNAMO OR MOTOR

or if you are a dealer and want an Agency send for our Catalogue and Price-List.

**LOVELL MFG. CO., LTD., ERIE, PA.**

**SITUATIONS WANTED.**

*Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.*

**A FOREMAN OR SUPERINTENDENT** of iron building construction; practical setter, rigger and finisher; is able to take charge of big buildings; can take measurements, make sketches and handle men to advantage; has charge of a big job now; first-class reference. Address "IRON BUILDING," office of *The Iron Age*, 96-102 Reade St., New York.

**A SALESMAN**, traveling through New York, Pennsylvania, Maryland, District of Columbia and all New England States, would like to represent a few manufacturers in connection with those he has represented for several years past; good references furnished. Address "B," Box 26, Buffalo, N. Y.

**BY A BESSEMER MAN** of 17 years' experience in managing Bessemer works; is familiar with the construction and running of Bessemer and rolling mills in general; best reference given. Address "BESSEMER," No. 1116, office of *The Iron Age*, 96-102 Reade St., New York.

**BY METAL BOX STRAP SALESMAN** with trade in New York and vicinity. Address "BOX STRAP," office of *The Iron Age*, 96-102 Reade St., New York.

**A YOUNG MAN**, 23, with five years' experience with hardware and machinery manufacturers, desires position of trust in that line; has good education and practical experience in bookkeeping and correspondence, and all kinds of office work; hard worker and can furnish best of references. Address "H. H. W.," Box 1116, office of *The Iron Age*, 96-102 Reade St., New York City.

**A COMPETENT SALESMAN** with fifteen years' experience, a large and valuable acquaintance in manufacturing interests, and most satisfactory references, resident in Chicago, wishes to represent some Eastern manufacturer in the West. Address "EASTERN MANUFACTURER," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

**CRANES, ENGINES, ICE MACHINES.**—A young man of ten years' experience wishes to engage with a firm desiring to extend its line of business. Address "CRANES," Box 1016, office of *The Iron Age*, 96-102 Reade St., New York.

**AN EXPERIENCED, RELIABLE**, and successful salesman, 35 years of age, wishes to represent a reliable manufacturer in Chicago and vicinity on commission; for a good line, will provide office and sample room in best part of city. Address "COOK CO.," office of *The Iron Age*, 96-102 Reade St., New York.

**BY A THOROUGHLY EXPERIENCED** man in general and builders' hardware, cutlery, guns, etc., as traveling salesman in any of above lines; wholesale house, manufacturer, or manufacturers' agent. Address "CUTLERY," office of *The Iron Age*, 59 Dearborn St., Chicago.

**BY A YOUNG MAN**, as foreman or agent of bench or machinery foundry; am a practical bench and floor molder, have had six years' experience in running foundry, and one year soliciting trade, am acquainted with all details of the foundry business, advanced in all improvements of the foundry, understand the working of jobbing by the piece, can take hold of shop and instruct boys and guarantee to run shop successfully with them, am familiar with all details of the production of soft, light and medium weight and heavy gray iron castings; am well acquainted with New York trade. Address "BENCH," No. 1116, office of *The Iron Age*, 96-102 Reade St., New York.

**JANUARY 1, 1894**, agency on commission for States of Pennsylvania, New York and Maryland; a full line table cutlery, German pocket cutlery, American pocket cutlery and hardware; all kinds, for manufacturers only; sporting goods line; open for engagement with wide awake manufacturers. Address "OLD TRAVELER," office of *The Iron Age*, 96-102 Reade St., New York.

**BY A MAN** of large experience, an agency in Boston for a manufacturer or importer; references of the highest order furnished. Address "C.," No. 295 West Chester Park, Boston, Mass, Suite No. 3.

**A PRACTICAL MACHINIST**, 35 years of age, late master mechanic for large iron firm in Pittsburgh, wishes situation to take charge of rolling mill or steel works machinery; has had 13 years' experience, understands engines, steam hammers, hydraulic work and general rolling mill machinery; strictly sober and steady; best of references given. Address "MASTER MECHANIC," office of *The Iron Age*, 509-510 Hamilton Building, Pittsburgh, Pa.

**A TRAVELING SALESMAN** with some reliable stove house for '94; All references as to character and ability. Address "SAM," office of *The Iron Age*, 96-102 Reade St., New York.

**A SUPERINTENDENT** or chief engineer, by a mechanical engineer of 15 years' experience in general engineering, hydraulics, cranes, turbines and water works, sheet, plate, and structural iron work, &c.; any one who wants an energetic man to look after their interests will answer this ad. "HUSTLER," No. 1019, office of *The Iron Age*, 96-102 Reade St., New York.

**A YOUNG MAN**, 23, wants situation with manufacturing concern, either machinery or hardware, as traveling salesman or in factory; is energetic, well acquainted with Western jobbing hardware and sporting goods trade, familiar with manufacture of hardware specialties and handling of men to advantage. Address "NORRIS," office of *The Iron Age*, 96-102 Reade St., New York.

**WANTED.**—Manufacturers of hardware and kindred goods who wish to sell in St. Louis and the Southwest to communicate with Room 10, 823 Chestnut Street, St. Louis, Mo., U. S. A.

**PIG IRON SALESMAN** desires position. Acquainted with New York State and New England trade. Thoroughly up and good salesman. Address "IRON SALESMAN," office of *The Iron Age*, 96-102 Reade street, New York.

**EXPERIENCED** young hardware salesman of ability and extensive acquaintance wishes to represent manufacturer of hardware specialties on commission in New York, Boston and Philadelphia. Address "SOLID," office of *The Iron Age*, 96-102 Reade St., New York.

**EXPORT** hardwareman with six years' experience, wholesale and retail, wants position. Has thorough knowledge of Spanish, German and English. References in city. Four years with wholesale house in Mexico. Address "SPANISH," office of *The Iron Age*, 96-102 Reade St., New York.

**A MANAGER** or foreman of a wire mill; have a thorough and practical knowledge of the wire trade in all its branches; twenty-five years' experience, twelve years as foreman; have charge of a large mill at present; am a good all-round mechanic, understanding the working of wire mill machinery and the building of annealing furnaces, bluing ovens, &c.; am strictly temperate and can furnish the best of recommendations from past and present employers; firms desiring a man that knows how to practice economy and run a mill on business principles will find it to their advantage to correspond with me. Address "TEMPERED STEEL WIRE," office of *The Iron Age*, 220 So. 4th St., Philadelphia.

**A YOUNG MAN**, 25, will change position; eight years with well known and one of largest concerns manufacturing builders' hardware (four as bookkeeper and assistant manager); quick, accurate accountant; experienced in able and economical management, all operating prices and complete data; thoroughly familiar with labor, costs, supplies, etc.; hard worker; can superintend; highest references; satisfactory reasons. "BUSINESS," No. 1019, office of *The Iron Age*, 96-102 Reade St., N. Y.

**BY AN EXPERIENCED HARDWAREMAN**, ten years' experience, three years' on the road; good salesman and stock keeper; West or Southwest preferred; best of references. Address L. W. VIVION, Benton City, Mo.

**A SCHEMIST** for iron or steel plant; thoroughly experienced in the analysis of iron ores, pig iron and steel; best of references given. Address "D. C.," No. 119, office of *The Iron Age*, 96-102 Reade St., New York.

**TRAVELING SALESMAN.**—A reliable, energetic and practical man seeks an engagement January 1st with manufacturer of heavy hardware, machinery or machinery supplies; best of references given from present employers. Address "SALESMAN," office of *The Iron Age*, 59 Dearborn St., Chicago.

**GENTLEMAN**, aged 36, for many years manager of a jobbing house in this city, dealing in a specialty used by the stove and hardware trade throughout the United States and Canada, is open for an engagement from January 1st with a responsible house requiring the services of a competent and reliable business man as manager, or to fill a similar position of responsibility; 18 years' practical business experience; thoroughly familiar with commercial usages, correspondence, management of salesman, etc. Address "NILO," office of *The Iron Age*, 96-102 Reade St., New York.

**BY A SOBER AND INDUSTRIOUS MAN**, as guide roller; can furnish first-class references as to ability, character, etc. Address "S. & I.," office of *The Iron Age*, 96-102 Reade St., New York.

**A FOUNDRY FOREMAN**; 28 years' experience, about half that time as foreman. Address "R. N.," Box 119, office of *The Iron Age*, 96-102 Reade St., New York.

**BOOKKEEPER.**—A young man, 38 years of age, with 20 years' experience as manager and bookkeeper, desires a position where ability is necessary; is well versed in the iron business; am able financier and a thorough accountant and will furnish the best of references; willing to go to city or country. Address "BOOKKEEPER," office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

**A WELL KNOWN** and successful Blast Furnace Superintendent or Founder will be open for engagement after Oct. 1st, 1893. Is thoroughly competent as constructor or in the management. Practical, theoretical and in touch with latest improvements in blast furnace practice. First-class record and references. Address "BLAST FURNACE, No. 921," office of *The Iron Age*, 96-102 Reade street, New York.

**RESPONSIBLE POSITION** by a graduated chemist and engineer in steel works or furnace plants; reference President Midland Blast Furnace Co. Address C. W. Kolbe, Midland, Mo.

**BY A MEMBER** of the A. S. M. E., expert in shop management and economical production of machinery, as superintendent or manager; well posted on dynamical, hydraulic and mechanical engineering and inspection of materials. Address "W. O. W.," office of *The Iron Age*, 96-102 Reade St., New York.

**HELP WANTED.**

*Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.*

**FOR THE SOUTHERN**, Eastern and Western trade, traveling salesmen, to sell on commission to consumers an article used by machinists, engineers, plumbers, &c. Address "C. W. G.," No. 2015, office of *The Iron Age*, 96-102 Reade St., New York.

**SALESMEN** visiting the jobbing and large retail trade in hardware and house furnishing lines, in the South and West, to sell as a side line, on commission, a first-class specialty. Address "BUCKET BOTTOMS," office of *The Iron Age*, Bank of Commerce Building, St. Louis.

**MAN EXPERIENCED** in soliciting orders for castings for gray iron foundry; a good opening for the right man. Address "JOBBER," office of *The Iron Age*, 96-102 Reade St., New York.

**MANAGER—EDGE TOOLS**—The advertisers having a well equipped factory producing edge tools, hammers, &c., wish to arrange with a thoroughly competent man, having a small capital, to make the goods under contract; full product of factory guaranteed; a good opportunity for the right man. Address "EDGE TOOLS," Box 1116, office of *The Iron Age*, 96-102 Reade St., New York.

**SALESMAN** traveling in Pennsylvania and the West, and selling to the hardware trade, to carry and sell on commission a small line of goods that sell quickly to every hardware house. Address "HARDWARE," office of *The Iron Age*, 220 S. Fourth St., Philadelphia, Pa.

**CUTLERY.**—Foreign (German) manufacturer desires representative; goods well known in this country; only first-class traveling salesmen need apply; state experience, amount of sales, &c., &c. "O. K.," Box 1116, office of *The Iron Age*, 96-102 Reade St., New York.

**A THOROUGHLY** practical mill manager to take full charge of plant making specialties in crucible and open hearth steels; give particulars as to experience and business qualifications; communications strictly confidential. Address P. O. Box 833, Pittsburgh, Pa.

**A SOBER, RELIABLE MAN** to take charge of cut nail machines and bolt and nut machines. Address COMPANIA INDUSTRIAL MEXICANA, Chihuahua, Mexico.

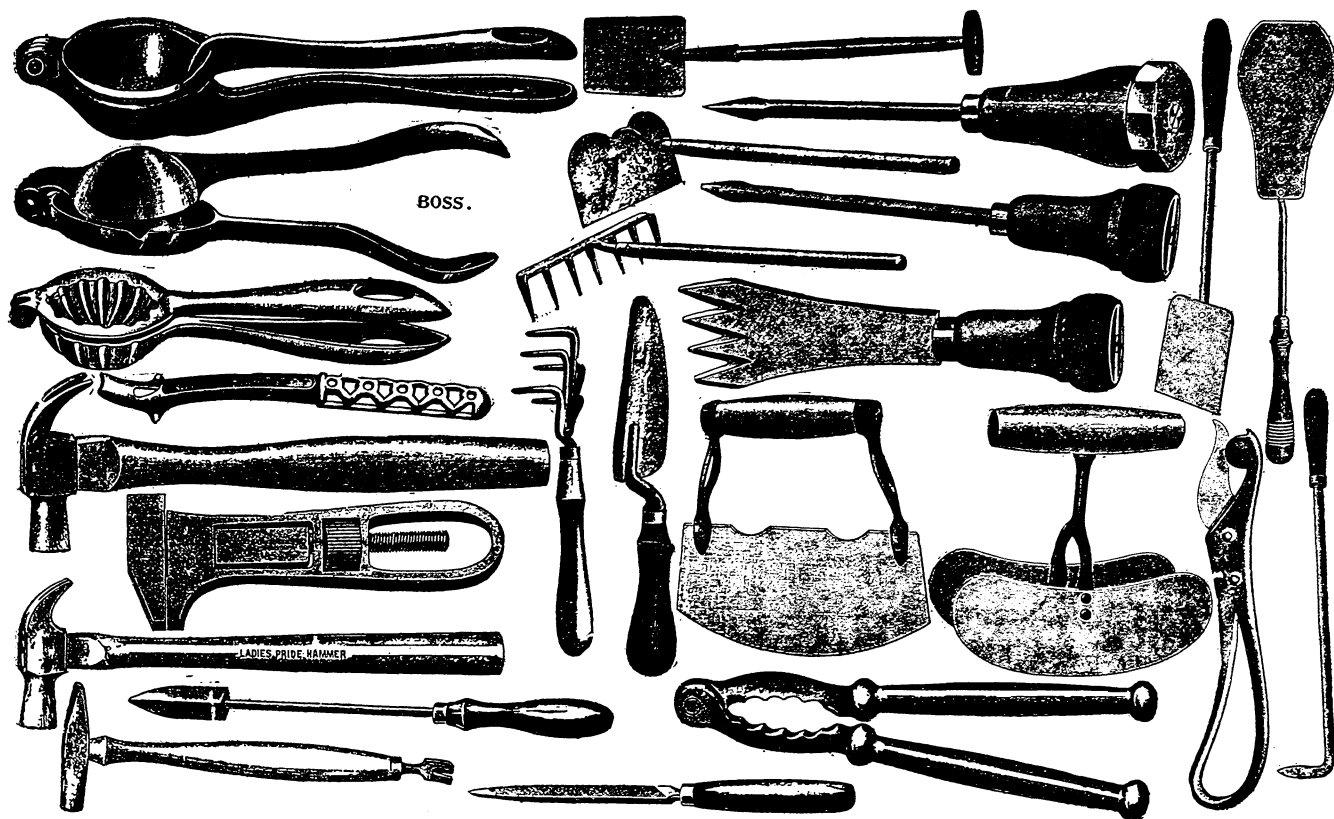
**SALESMEN** to sell on commission to the hardware, plumbing and rubber trade the best and cheapest line of lawn sprinklers made; see advertisement in this paper. Address ERTE & HENGER MANUFACTURING CO., St. Louis, Mo.

**SALESMAN** with experience and trade in cutlery and hardware in New York State; state salary expected and where last employed. Address "EXPERIENCE AND TRADE," office of *The Iron Age*, 96-102 Reade St., New York.

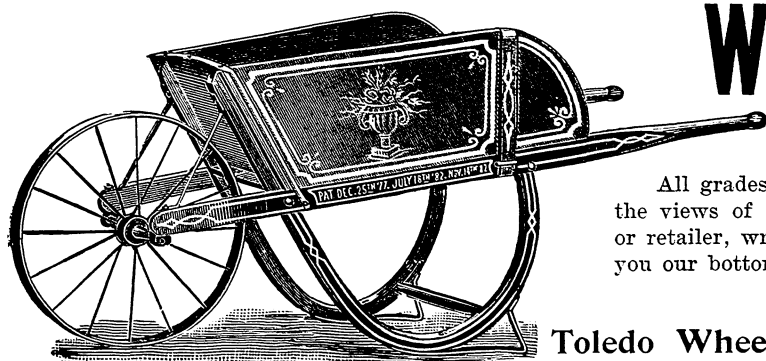
**SALESMAN** traveling the jobbing and large retail trade in the East, one in the West, and one in the South, to handle line of hardware specialties as side line; salary or commission; the line is too small for manufacturer to travel alone. Address "L.," office of *The Iron Age*, 220 S. Fourth St., Philadelphia.

**COMPETENT FOREMAN**, in wrought iron and wire factory; must be experienced in all its branches; give references and salary expected. Address "WIRE AND IRON WORKER," office of *The Iron Age*, Bank of Commerce Building, St. Louis.

**EDWIN HILLS,**  
**Manufacturer of HARDWARE SPECIALTIES,**  
**PLAINVILLE, CONN.**



—SEND FOR CATALOGUE AND PRICE-LIST.—



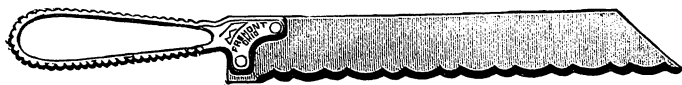
## WHEELBARROWS.

All grades, all styles, all sizes, at prices that will meet the views of any hardware dealer in the country. Jobber or retailer, write us your requirements and we will name you our bottom prices.

Toledo Wheelbarrow Works, = Toledo, Ohio.



## Sharp—of Course.



The "Clauss" Bread and Cake Knives are the finest, cut the easiest and wear the longest; facts that we guarantee, remember. As to price write us.

The "Clauss" Knife Sharpener is made purposely for them and is the best. Address



**THE CLAUSS SHEAR CO.,**  
**FREMONT, O**

**THE WILLIAMS PRINTING CO.,**  
**Commercial Printers and Binders**

**ESTIMATES FURNISHED FOR ALL CLASSES OF WORK.**

96 98, 100 & 102 READE ST., NEW YORK  
 E

# THE STEEL AND IRON IMPROVEMENT CO.,

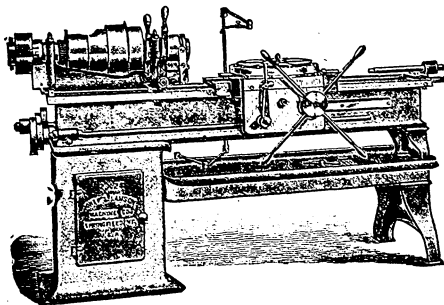
Controlling the Adams-Blair Process and other Steel and Iron Patents.

**High Grade Open Hearth Steel produced by the Adams-Blair Process at less than the Cost of BESSEMER Steel.**

**91 and 98 Fifth Ave., Pittsburgh, Pa.**

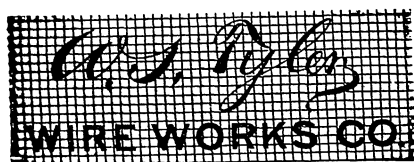
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If not send for

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Double Crimped Wire Cloth for Mining Purposes.

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Analysis of Water, Ores, Minerals, Metals, Fuel, and Natural and Industrial Products generally.

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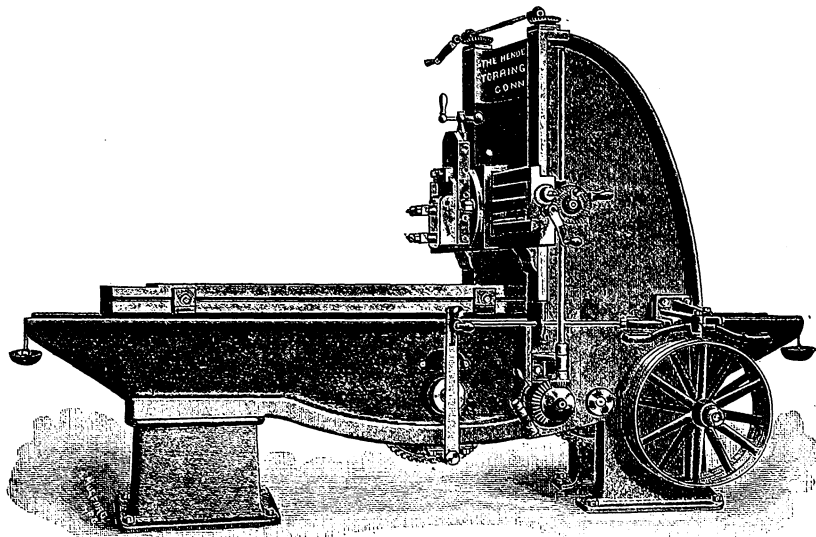
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Offer Aluminum guaranteed equal in purity to the best in the market, at lowest rates obtainable.

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We have on hand a few new planers of this pattern, and in order to dispose of them quickly, we would make a good reduction in price of same. The sizes are 16 inch, 22 inch, 24 inch and 27 inch. If you are in need of a good planer write us for prices on these.

## The Hendey Machine Co., Torrington, Conn.

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**THE HORIZONTAL BORING MACHINE**

IS A SPECIAL TOOL FOR THIS PURPOSE.

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B. & B. Combination Oil Heaters and Cook Stoves are a great success, as proven by the many testimonials received from all parts of the country.

Every Stove is mounted on rollers, and can easily be moved from room to room. They can be used in place of a range in the kitchen or in place of a base-burner in the parlor. They are thoroughly well adapted to all the requirements, combining as they do all the qualities of a first-class Oil Heater and an elegant Parlor Cook Stove.

If you happen to have one of them upstairs, the tank can easily be removed and taken down to the kitchen to be filled, and again replaced in the Stove.

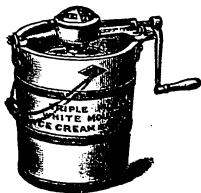
Those who have used the old style Stove with tanks fastened in them as tight as if cast in the iron will appreciate this feature. They can be fitted with our 2-hole, 3-hole or 4-hole Extension Tops for regular 8-inch ware. We want your trade, and if you will give us a chance to quote you prices we will have it.



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## WHITE MOUNTAIN ICE CREAM FREEZER.

It always has been, and is still, the best. Try them.

Manufactured by The White Mountain Freezer Co., Nashua, N. H.



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has the reputation of being the BEST ICE CREAM FREEZER ever introduced. STRENGTH, DURABILITY, NEATNESS AND EFFICIENCY are prominent points in the manufacture. Full Size Can, CEDAR TUB, Detachable Hinged Crossbar, Self-adjusting Vibratory Scraper, etc.

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FOR  
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BATTERS, DRINKS,  
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MELLOW FRUITS,  
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No. 20 for Family Use.  
JAR ENTIRELY COVERED.

No more Spattering.  
CAN BE USED ANYWHERE.

Standing or Sitting.  
ALWAYS READY FOR USE.

Nothing to be fixed.  
SIMPLY PERFECT.

No. 20.-Jar holds 1 quart level full.  
Complete Machine securely packed in one single package.  
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Manufacturers of Hardware Specialties for Household use  
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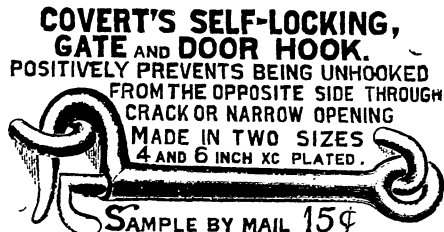


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Strongest Cycle of its weight  
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POSITIVELY PREVENTS BEING UNHOOKED  
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MADE IN TWO SIZES  
4 AND 6 INCH XC PLATED.

SAMPLE BY MAIL 15¢

Call for Our Banner Bolt Snap.

This snap has many important advantages over other makes of Bolt Snaps, viz.: It is lighter, the spring is entirely covered and protected from foreign substance and freezing, and is lower in price.

Made in all sizes; Round, Loop and Open Eye. We are headquarters and the most extensive manufacturers in Saddlery, Coach and General Hardware Specialties.

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**Sand  
Papers**

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Reams and Roll

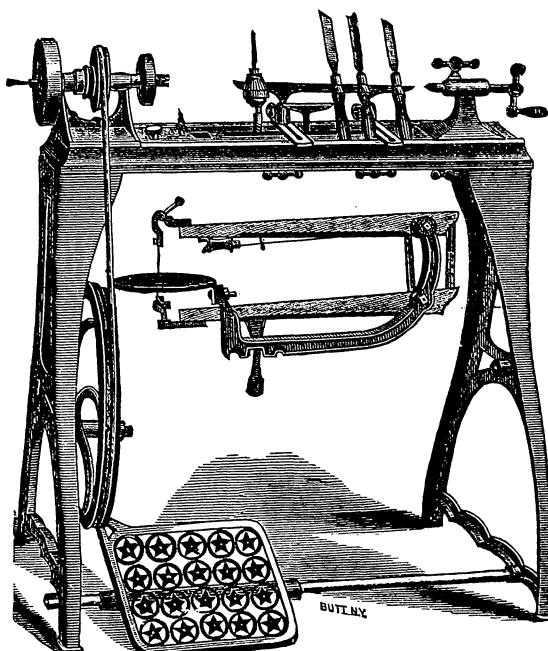
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FELTING for covering Boilers, Steam and  
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# HOLIDAY GOODS.



Many kinds of Scroll Saws have been put on the market by ourselves and other manufacturers during the past twelve years. Of these only a few have proved good enough to remain in demand. The call now is for a well-made, practical machine, and all second-class ones are of slow sale.

Those who want a good Lathe with Scroll-Sawing Attachment and all Tools and Improvements to the very latest moment will buy the Goodell Lathe.

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No dealer can make a mistake by laying in a stock of them. About Christmas time they are wanted in every town, and will make business lively at this otherwise dull season.

We also keep a full stock of Designs, Wood, and all other Scroll Sawing goods.

**Price of Goodell Lathe, complete, \$12.00.**

**Price of Rogers Saw, complete, \$3.50.**

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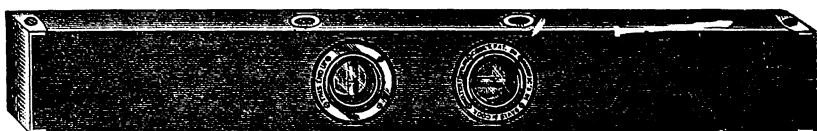
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Palmer's Common Sense Frame Pulley.



MANUFACTURED BY

**PALMER HARDWARE MFG. CO., Troy, N. Y.**



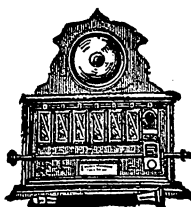
## COOK'S PATENT LEVEL.

Made in Wood and Iron. Every Level Fully Guaranteed.

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TAKE NO  
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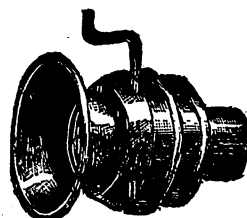
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DRAWER LOCKS,

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A complete line of more than 1000 list numbers exclusive of our old and complete line of

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MAKES FRIENDS and MONEY, and  
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And the people are right.

It is the strongest and best glue made. It has been imitated, but never equalled. Be sure to get what you order and ACCEPT NO SUBSTITUTES.

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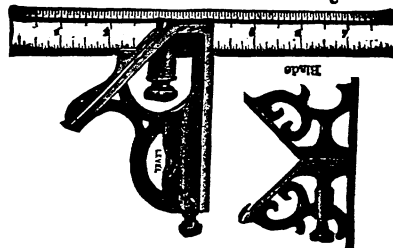
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ATHOL MACHINE CO., Selling Agents.

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Ratchet Wrenches.

Made of best forged Tool Steel; are easily and readily adjusted and controlled. Can be made reversible instantly without removing from their work by throwing over the lever in slot of the handle.

The Set of Combination Tools No. 1 includes the wrench, two sockets, one for screw-driver, bit or reamer shank, with wood handle, and one socket



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INTERCHANGEABLE  
LOCK-CORNER SHELF BOXES.

Screw Cases, &amp;c.

FOR THE HARDWARE TRADE

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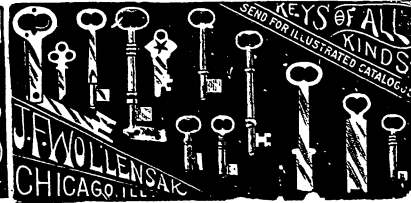
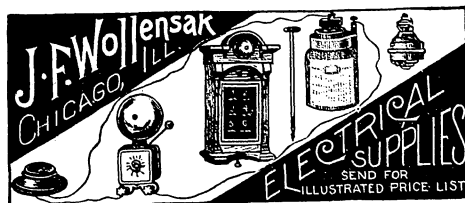
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The Very Highest Grade  
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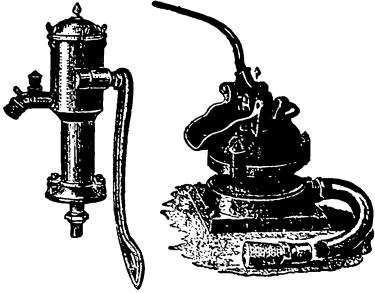
A LARGE CAPACITY AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 209.

Fig. 381.

Fig. 145.



or wherever it is desired to raise a large quantity of water by  
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The pump has large valves (accessible by hand), and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

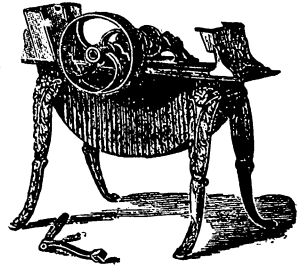
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from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for **IRON** Pipe Suction underneath.

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**THE DEMING CO.**  
FACTORY  
SALEM O.S.A.  
MANUFACTURERS OF  
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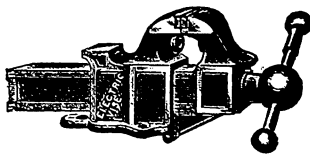


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Ashland Pump and Hay Tool Works.

The New York "Safety" Dumb Waiter.  
"The Manhattan Dumb Waiter."  
"The Improved Humphrey Hand Elevator."  
Made specially to be sold by Hardware Stores.  
Thousands in use. Catalogues on application.  
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NEWARK, NEW JERSEY.  
Formerly of Poughkeepsie, New York.

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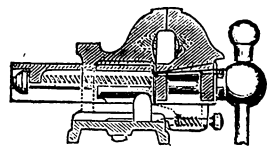


Patented Dec. 27, 1892.

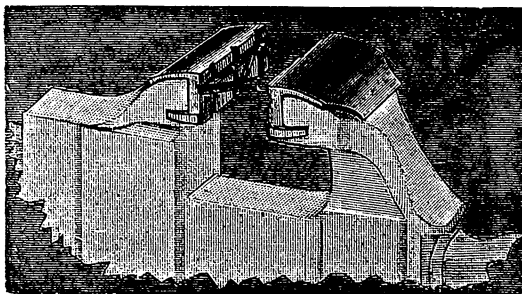
IT HAS QUALITIES THAT ARE  
UNDISPUTED.

**Rapid, Active, Prompt.**

One movement in and out, one  
turn of the hand and the  
work is secured.



**The Capital Machine Tool Co., AUBURN, N. Y.**



## BINCHAM PATENT VISE JAW CAP

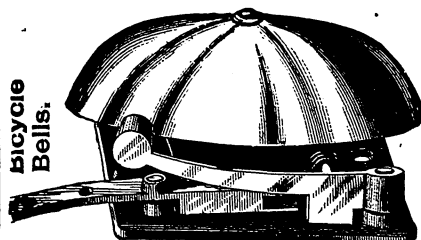
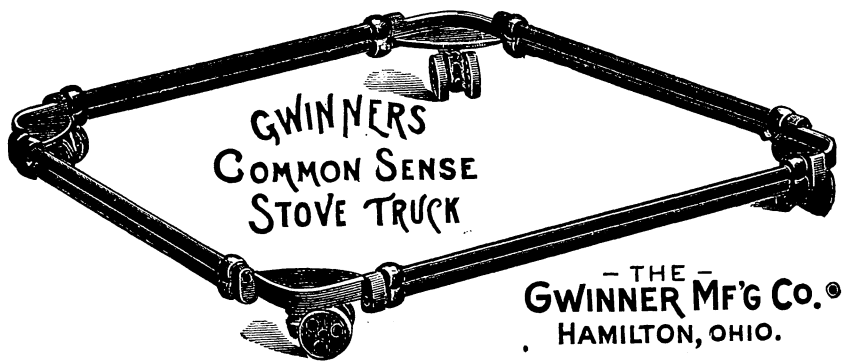
Will Fit any Kind of Vise.

For protecting finished work. Will  
hold finished rods of any shape without  
injury.

3 1/4 inch.....per pair, 40 cents.  
4 " " " " 50 "  
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**PRENTISS VISE CO.**

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Bells.

BEVIN BROS. MFG. CO., Easthampton, Conn.  
Manufacturers of

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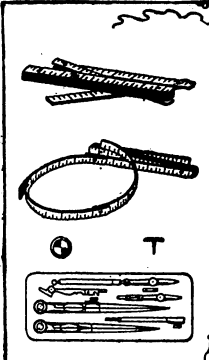


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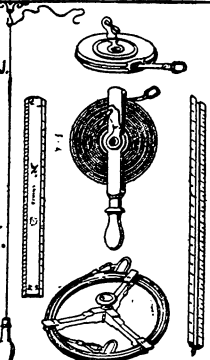
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NO WARPING, NO SHRINKING, NO ILLEGIBLE JOINTS, NO BULK.  
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FLAT & TRIANGULAR BOXWOOD SCALES, BEST MADE.  
PLUMB BOBS, THUMB TACKS, DRAWING INSTRUMENTS.

PRICE LISTS & QUOTATIONS PROMPTLY SENT.



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### THE MAJESTIC.

Design Patented August 29th, 1893.



All our goods Sectional Plated on parts most exposed to wear.

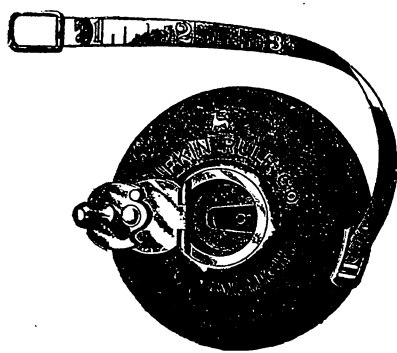
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FOR SALE BY ALL THE LEADING JOBBERS.



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Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

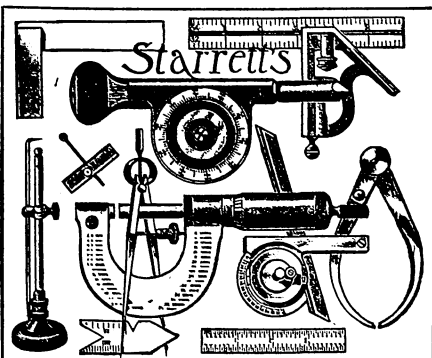
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Skilled mechanics prefer them

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Finest  
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For  
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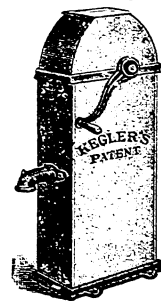
### GALVANIZED IRON TUBING and CURB,

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Are Giving Universal Satisfaction,

BECAUSE:

They do not rust and accumulate filth—always clean. Extreme lightness is combined with strength and durability. No freezing. No waste of water by reason of enlarged reservoir at top of tubing. No annoying wheel at bottom. Easy to handle. Tubing weighs less than 1/2 lb. per ft., is connected by couplings and can be attached to any make of curb.



Send for Catalogue.

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New in Principle.  
Beautiful in  
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Powerful in Operation.  
Contains covered Internal Gear.  
Unequaled in the line of Pumping Wind Mills. We solicit the closest investigation. Also Columbia Steel Derrick, Iron Turbine Wind Engines, Buckeye Force & Lift Pumps, Tank and Spray Pumps, Buckeye and Globe Lawn Mowers, Iron Fencing, Cresting, Etc. Write for circulars.

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Manufacturers of  
TINNERS' HARDWARE.  
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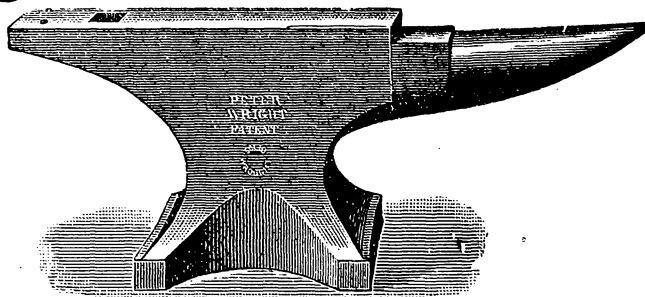
NEW YORK.

SAWS

## Peter Wright's Patent Solid Wrought Anvil

PETER  
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Fac-Simile of Trade-Mark.



Fac-Simile of Green Label.

By Royal Letters Patent.

V. R.

PETER WRIGHT'S  
SOLID WROUGHT  
**ANVIL**  
Made of Best Scrap Iron!  
THE BICK FACE AND END ALL  
IN ONE SOLID PIECE!

You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other.

PETER WRIGHT &amp; SONS, Dudley, England.

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SAWS

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BUSINESS ESTABLISHED  
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Headquarters for

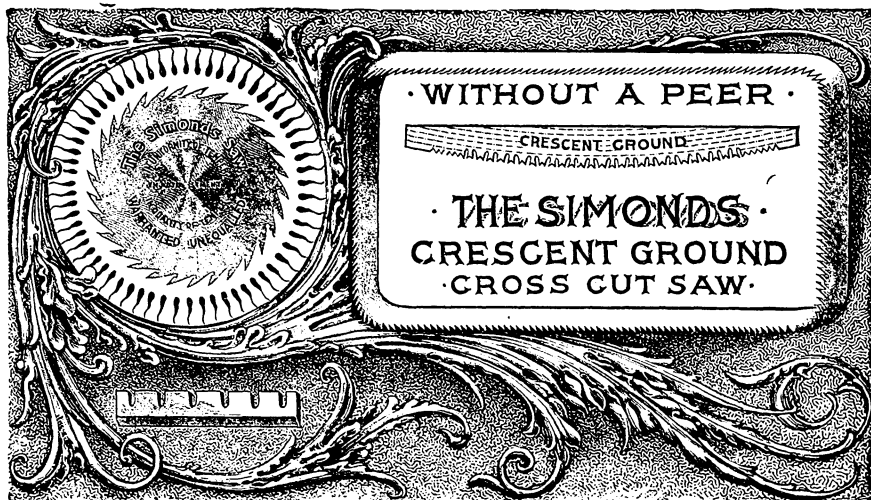
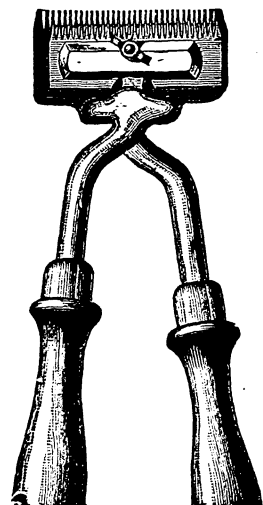
Coates' Horse Clipper

AND  
Barber  
Clippers.

ALSO  
THE "BELL"  
AND  
THE "COMET"

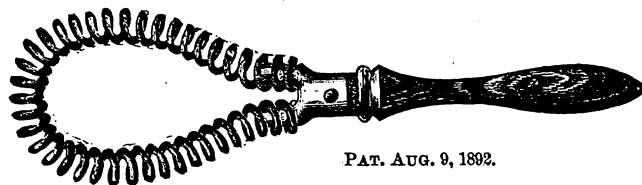
Horse  
Clippers.

At prices to suit  
the times.



Simonds Mfg. Co. Simonds Saw Co.  
FITCHBURG, MASS. CHICAGO, ILL. SAN FRANCISCO CAL. PORTLAND, ORE.

## THE BOSS DUST BEATER.



PAT. AUG. 9, 1892.

NEAT, DURABLE, AND DOES THE BUSINESS.

For removing dust and filth from Clothing, Upholstered Furniture, Rugs and Carpets it is just the thing. Will raise the nap and so improve the appearance. Will not, like other Dust Beaters, leave marks, nor tear the fabric. The coil is of steel wire secured in a malleable iron socket and attached to an enameled wooden handle. Just what everybody wants.

Retail Price, 25 Cents. Sent by Mail, 35 Cents.

**PEABODY & PARKS,**  
Manufacturers, TROY, N. Y.

"If you want a Saw it is best to get one with a name on it which has a reputation.  
A man who has made a reputation for his goods knows its value as well as its cost and will maintain it."—HENRY DISSTON.

# THE SAWS THAT LEAD THEM ALL

## DISSTON & SONS' PATENT D-8 HAND SAW.

"THE  
SAW;"

HOW

TO

CHOOSE

IT,

AND

HOW

TO

KEEP

IN

ORDER,

Sent

Free

on

Receipt

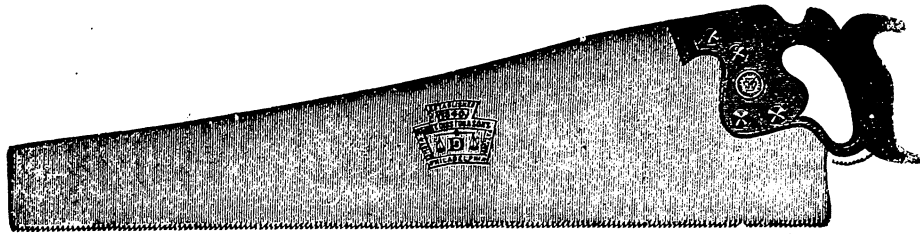
of

Name

and

Post Office

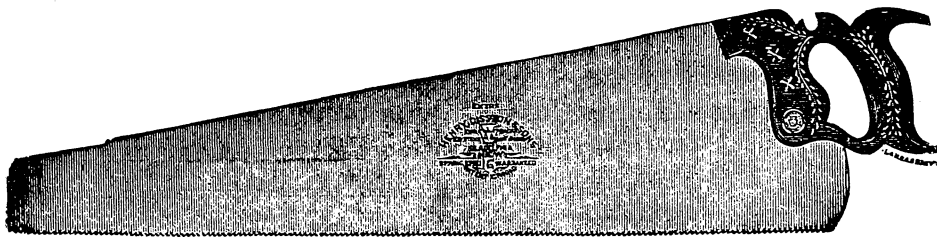
Address.



This Saw combines all the valuable improvements in Hand Saws that have been made by us of late. The first and most important is the hollow or skew back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

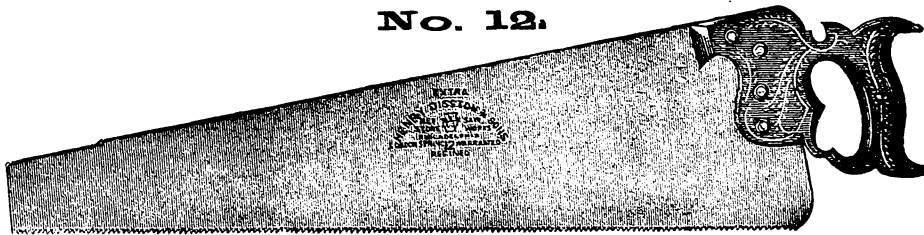
## Our New No. 16 Premium Saw.



AN EXTRA FINE SAW IN EVERY RESPECT.

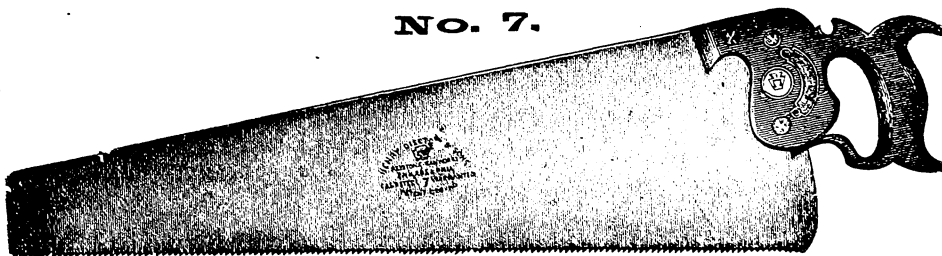
Having the Latest Close up Handle, Spring Steel Blade, Extra Thin Back, Finely Grained, with an Apple Handle and Four Brass Centennial Screws.

No. 12.



DISSTON & SONS' Extra Refined London Spring Steel, Selected and highly Polished Blade, Handle Carved and Polished, 4 Improved Brass Screws, the finest Hand Saw manufactured.

No. 7.



DISSTON & SONS' Cast-Steel, Warranted, Beech Handle, Polished Edge, 4 Improved Screws, Grained Blade.

"POCKET  
EDITION

OF

THE

SAWYER "

and

"LUMBER-

MAN'S

HAND

BOOK,"

Sent

Free

on

Receipt

of

Name

and

Post Office

Address

ASK YOUR DEALER TO ORDER THEM FOR YOU.

# HENRY DISSTON & SONS

(INCORPORATED),

Keystone Saw, Tool, Steel and File Works, Philadelphia, Pa.

Samuel W. Allerton, Pres.

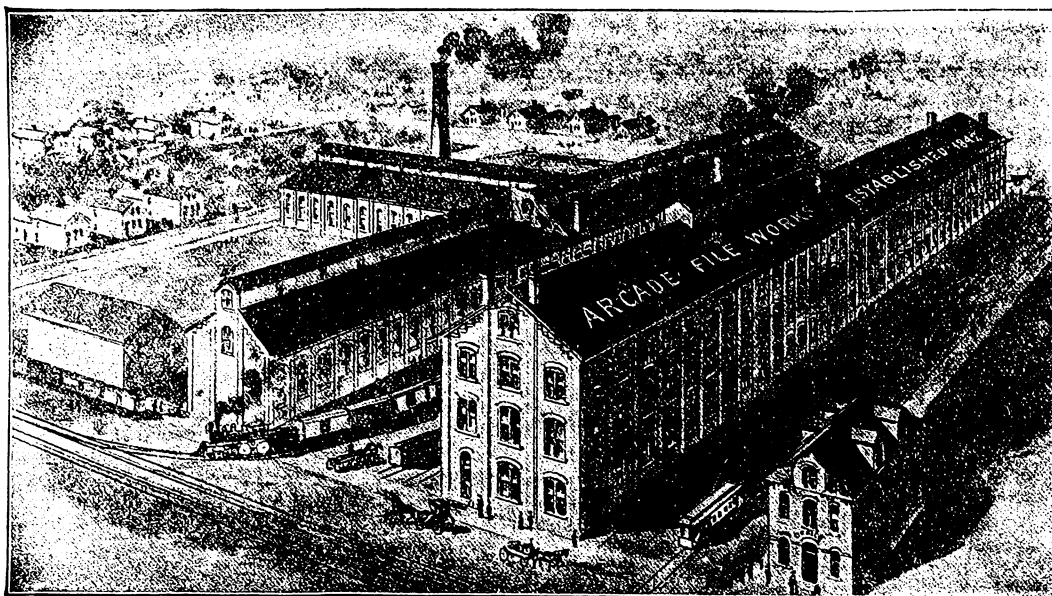
Courtlandt C. Clarke, Sec. and Treas.

Alfred Weed, Vice-Pres. &amp; Gen. Manager.

# ARCADE FILE WORKS.

ESTABLISHED 1842.

Eastern Office and Warehouse,  
83 READE STREET, NEW YORK CITY.



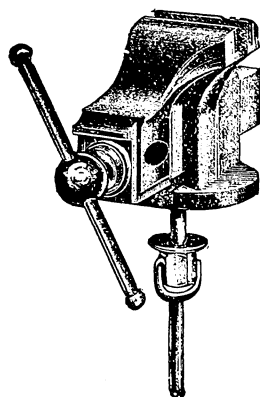
Western Office and Warehouse,  
23 LAKE STREET, - CHICAGO, ILL.

Works: ANDERSON, IND.

## THE FILES THAT LEAD THEM ALL.

THE BEST EQUIPPED FILE WORKS IN THE WORLD.

The fact that we alone use the improved File Machinery recently invented by Alfred Weed, and the even heat of natural gas, enables us to produce a file that will cut faster and wear longer than any on the market.



HOLLANDS'  
OFFSET JAW  
VISE.

Specially adapted  
for drill press work  
where chucks can-  
not be used and  
equally good for  
special or regular  
bench work.

Hollands Mfg. Co.,  
ERIE, PA.,  
Manufacturers all  
styles VISES.

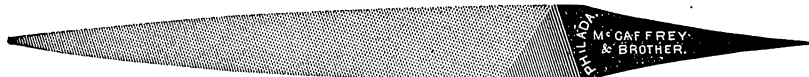
Philadelphia, 1876.



### McCaffrey File Co.,

FIFTH and BERKS STS.,  
PHILADELPHIA, PA.

For Superiority.



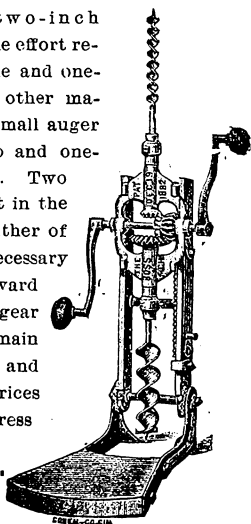
Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.


*Superiority acknowledged wherever used, sold or exhibited.*

### The Boss 2-speed Boring Machine.

Will operate a two-inch auger with the same effort required in using one and one-half inch in any other machine, and for the small auger have a speed two and one-half times faster. Two augers may be kept in the machine, to use either of which it is only necessary to point it downward by first taking the gear frame out of main frame, inverting and replacing it. For prices and discounts address

Buckeye Mfg. Co.  
Union City, Ind.



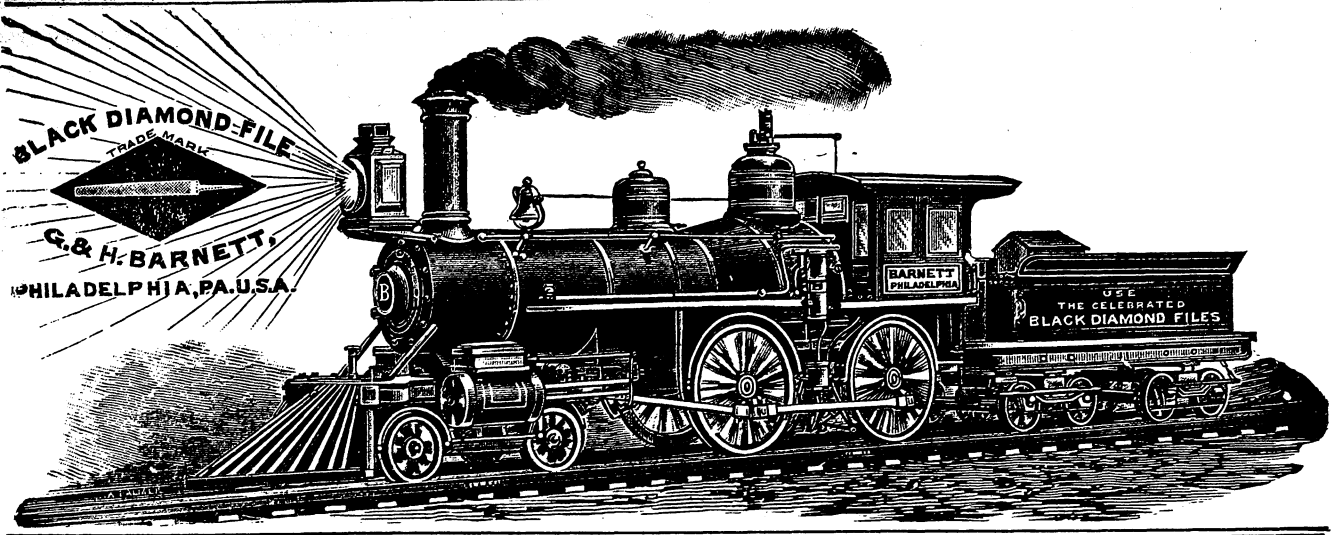
BEST		" TROJAN " HORSE RASPS.		LOWEST	
CRUCIBLE	STEEL.			IN	PRICE.
STRONGEST	TOOTH.	BANKER & WHITE,		TROY, N. Y.	LET US QUOTE.
		(Troy File Works.)			

## The Taintor Positive Saw Set.

Mechanics are now inquiring for this tool, and Hardware Dealers should have them in stock, or at least have a sample.

For Prices and Discounts, address

WIEBUSCH & HILGER, LTD., SOLE AGENTS,  
84 and 86 Chambers Street, NEW YORK.



**J. M. KING & CO.,**  
WATERFORD, N. Y.

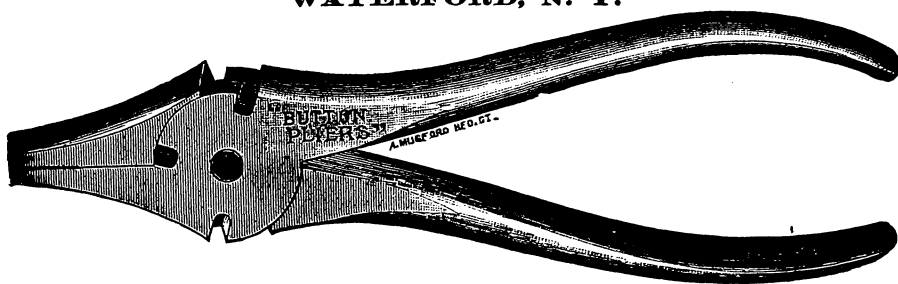
Manufacturers of  
**BUTTON'S**

**Pat. Wire Cutter  
AND PLIER COMBINED.**

Specially Adapted for Use on Wire Fence.

Also Manufacturers of BLACKSMITHS' and  
MACHINISTS' STOCKS and DIES, PLUG and  
TAPER TAPS, HAND, NUT and SCREW  
TAPS, PIPE TAPS and REAMERS.

Price-List on Application.



Established by DANIEL B. KING, 1829.

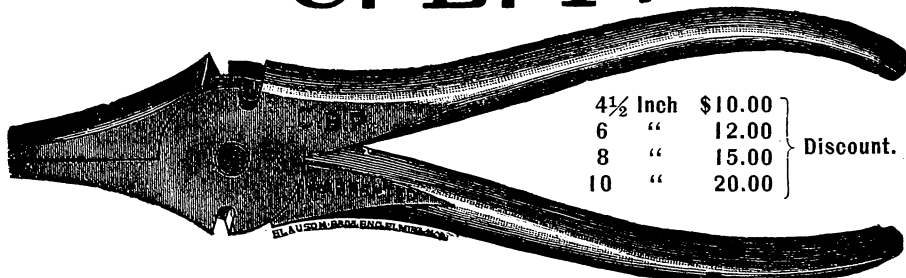
**Cronk's Patent Wire Cutter AND Bender.**

8 in., \$15.00 }  
10 in., 20.00 } Discount, ---



This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is especially adapted to farmers' use in building Wire Fence, &c.  
Our reasons for claiming that we have the best Pliers in the market are:  
FIRST.—We use the best Tool Steel and they are nicely finished.  
SECOND.—We combine both Flat and Round-Nosed Pliers in one; the concave and convex circles between the handles are used for bending wire in any desired shape.  
THIRD.—The cupping in the Nose is used for pulling tacks, brads or nails, and can also be used in place of Hill's Hog Ringer.  
FOURTH.—We can cut Barbed Wire, Barb Belt or any kind of Wire used for Fencing purposes. We also claim that we have the only Plier made that the Cutting Jaws cannot be broken.  
By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.

**C. B. P.**



4½ Inch \$10.00 }  
6 " 12.00 } Discount.  
8 " 15.00 }  
10 " 20.00 }

What we claim for this plier is that it is made from best quality tool steel and is made heavier and stronger than any plier of its kind in the market and the finish is first-class. Also they are made so the jaws are parallel when used on wire from 9 to 14 gauge and will hold the wire solid.

**CRONK HANGER CO.,** Sole Manufacturers, Elmira, N. Y.

Pacific Coast Agents: CHAS. L. PIERCE & CO., San Francisco, Cal.

**BOOKS.** YOU CAN OBTAIN PROMPTLY the latest work on any subject in which you are interested by addressing DAVID WILLIAMS, Publisher and Bookseller, 96-102 Reade Street, New York.

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PROVIDENCE, R. I.  
THE LARGEST AND MOST COMPLETE FILE WORKS IN THE WORLD.  
VARIETIES FILES  
3000  
[X.F.] AND INCREMENT CUT FILES

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# John Wilson's Butchers' Knives and Steels, Skinning, Sticking, Farriers' & Shoe Knives,

Have established and maintained their reputation, for superiority,  
against all Competitors, from

**THE YEAR SEVENTEEN HUNDRED & FIFTY,**

and are still in increasing demand. As in the past, it is the unalterable  
DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.

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SOLE AGENTS FOR THE UNITED STATES, AND THE CANADAS.

Messrs. Hermann Boker & Co., 101 and 103 Duane St., New York.

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## JOSEPH RODGERS & SONS, Limited.

—MANUFACTURERS OF—

Pocket and Table Cutlery, Scissors, Razors, Erasers, &c., &c.

These goods have fully maintained their reputation as the best cutlery in the world for over

**ONE HUNDRED AND FIFTY YEARS.**

Any Infringements of our Name and Corporate Mark will be promptly prosecuted.

Sole Agents for the United States,

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Established 1836.

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CHAINS, FILES.

SOLE AGENTS FOR

Joseph Rodgers & Sons, Best Cutlery in the  
world; W. K. & C. Peace, unrivaled Grass Hooks.  
Straw Knives and Scythes; Joseph Elliot & Sons.  
Celebrated Razors; Peugeot Frères, "French  
Toilet" and other Clippers; L. Hugoniot Tissot.  
Fine Steel Pliers, &c.; Eley Bros., Caps, Wads  
Cartridge Cases, &c.; Webster & Horsfall, Steel  
Wire of every description.

Send for Rodgers' New Illustrated Catalogue

MANUFACTURERS of Ship Carpenters',  
Tinners', Coopers' and Butchers' Tools.  
Our specialties are Meat Cutting Machine Knives,  
Planing Mill Knives, Leather Splitting and  
Paper Cutting Machine Knives, Butchers' Cleav-  
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your valued orders.

**BUFFALO EDGE TOOL WORKS,**

RIDGWAY, PA.

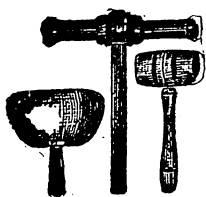
N. Y. Mallet and Handle  
WORKS.

MANUFACTURERS OF

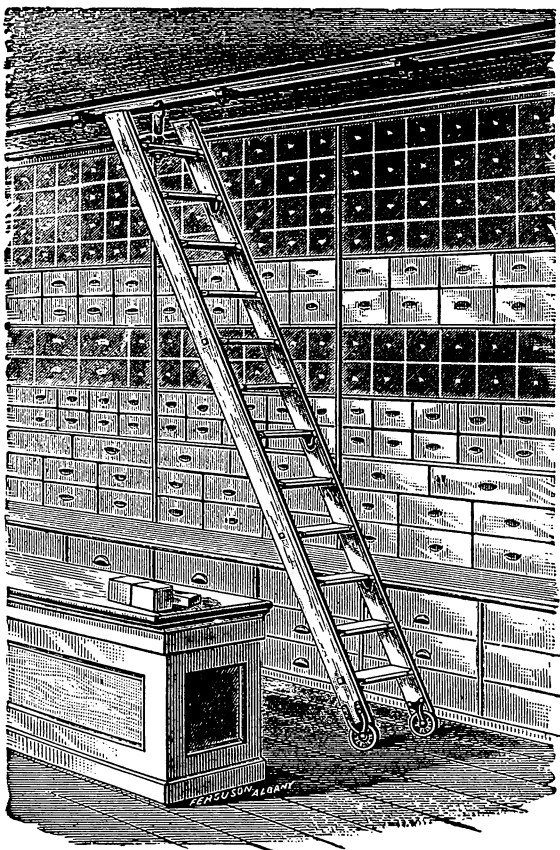
**MALLETS.**

Also Cotton and Bale  
Hooks.

Patented Feb. 13, 1877, a new  
combination of Hooks.  
456 E. HOUSTON ST.,  
New York City.



## THE "NOISELESS" STORE LADDER.



The latest and best. Perfectly noiseless. Neat in ap-  
pearance.

Manufactured by

**M. CROISSANT,**

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**THE KOCH PAT.**  
SHIFTABLE BRACKETS. REVERSIBLE.  
FOR BOOKS, LIBRARIES, CUPBOARDS, ETC.  
Koch A. B. Co.  
518 MAIN ST. PEORIA, ILL.

*Manufacture To Order*  
SPECIALTIES & NOVELTIES, PATENTED ARTICLES,  
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SEND FOR CATALOGUE—CORRESPONDENCE SOLICITED  
**OTTO KONIGSLOW CLEVELAND, O.**

**J. R. TORREY & CO., Worcester, Mass.**

New York Office: 74 Reade Street.



No. 8 X.

The **TORREY RAZOR STROPS** are known the world over as the standard for excellence in setting a fine edge. We manufacture and carry in stock more than 150 styles.

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"Stamped with the **BUCK'S HEAD**."

**BUCK BROTHERS EXTRA.**  
**BUCK BROTHERS,**  
MILLBURY, MASS.



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Buyers are cautioned against any parties who claim a recent connection (or any connection for over 20 years) with Buck Bros., or who represent goods as our make not stamped with the **BUCK'S HEAD** or **BUCK BROTHERS** in full.

The Most Complete Assortment in the U. S. of  
Shank, Socket Firmer and Socket Framing  
Chisels.

**PLANE IRONS.**

Established 1825.

Incorporated 1892.

**R. HEINISCH'S SONS CO.,**

NEWARK, N. J., U. S. A.

New York office, No. 90 Chambers St.

Tailors' Shears, Trimmers, Scissors, Tinnern's Snips, etc.

CATALOGUES AND PRICES ON APPLICATION.

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AGENTS FOR THE SALE OF OUR GOODS.**

HIGHEST AWARD PARIS EXPOSITION, 1889.



**THE L. & I. J. WHITE CO.**

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OF

**EDGE TOOLS.**

Coopers', Carpenters' and Ship Tools, Plane Irons,  
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**Lightning Band for Cases and Crates.**

(COVERED BY U. S. LETTERS PATENT.)



Mounted on reels and always ready for use and convenient to handle. Easily and quickly binds shipping cases and crates in a neat, strong and substantial manner.

PRICES:

No. 1, per reel of 2000 ft., \$4.50 net.

No. 2, per reel of 2000 ft., \$4.75 net.

Pliers for cutting wire, 50 cents extra.

No. 1 for cases under 300 or 400 pounds, and No. 2 for all heavier cases.

Buffalo Specialty Mfg. Co.  
Sole Manufacturers,  
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**Cast Shears.**

ACME SHEAR CO.,

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**MARTEN DOSCHER,**  
**Commission Hardware,**

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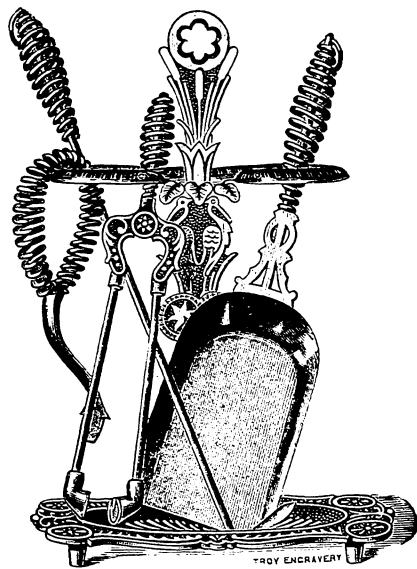
Agent—G. W. Bradley's Edge Tools, Axes, Coopers' Tools. Cleavers, Bush Hooks, Draw Knives, Ship-Carpenters' Tools, &c. Also a full stock of Planes, Brooks' Bright Wire Goods, Washita Stone, and Taunton Tack Co.'s Rivets, &c.

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ALWAYS COLD.

Stove Trimmings.

Pokers, Lifters, Shovels, Fire Sets.



For Sale by All

First-class Jobbers in Hardware.

Made under Gaitly Patents and only by

**Troy Nickel Works,**

TROY, N. Y.

FRANCIS FROST & CO., Toronto, Ont.  
Canadian Sales Agents.

**WHEN IN WANT OF  
WOSTENHOLM'S  
I★XL**



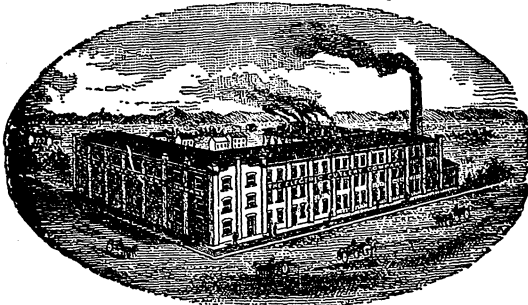
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SEND TO

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FACTORY: FOURTH &amp; DICKERSON STS. NEWARK, N. J.

## THE ELECTRIC CUTLERY CO.,

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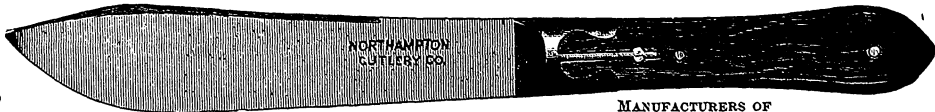
Manufacturers of Razors, Knives  
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NEW YORK

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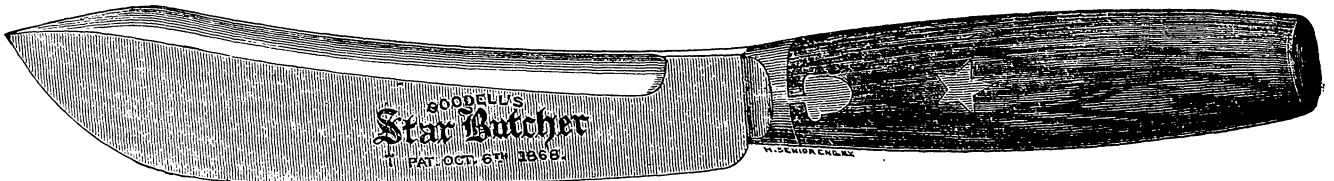
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Street.

MANUFACTURERS OF

TABLE CUTLERY, BUTCHERS' CARVERS, PLATED GOODS, &amp;c.

Send for Revised Catalogue.

**THERE IS NOTHING NEW  
TO SAY ABOUT THIS KNIFE EXCEPT  
IT IS GROUND SHARP**



### WE DON'T KNOW HOW TO IMPROVE IT.

Blade is made of steel especially prepared for the purpose, and it is made just right; finish excellent; shape unsurpassed; the handle just fits the hand.

### GENERAL APPEARANCE IRREPROACHABLE.

Made in sizes from 5 inch to 8 inch; a strictly first-class butcher knife at a moderate price.

### WE HAVE OTHER BUTCHER KNIVES,

4½ to 14 inch blade, that will cut as well, for less money. Also Table Knives and Forks, Carvers, Butcher Steels, Bread Knives, Cheese Knives, Butter Spades, Apple, Kitchen, Putty, Cigar, Shoe Knives, &amp;c., &amp;c., in great variety. We aim to make the best and sell at reasonable prices.

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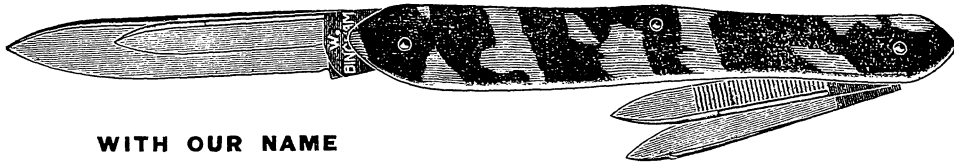
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THE ALFORD &amp; BERKELE CO., 77 Chambers St., N. Y. City.

HENRY KEIDEL &amp; CO., Baltimore, Md.

A

Knife,  
Razor,  
Scissor,  
Shear,



WITH OUR NAME

That money  
and 50 years  
experience can  
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**IS THE BEST**  
**THE W. BINCHAM CO., Cleveland, O.**



outs, Kennel Chains, &amp;c.; also cut to lengths for manufacturers' use.

The cut represents the exact size of 6/0.

Thirteen Sizes made, 6/0 being the Largest.

## The Bridgeport Chain Co.'s Triumph

Chain, made into Halters  
Traces, Cow Ties, Tie-FACTORY AT  
BRIDGEPORT, CONN.

## FAYETTE R. PLUMB,

Edge Tools  
Hammers

AND

Sledges.

Penna. R. R., Tucker and James Sts.

Manufacturer of



Main Office and Works

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AND

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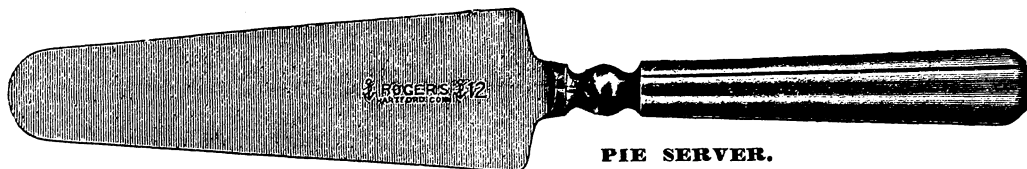
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—NONE BETTER—

THAN THE



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PIE SERVER.

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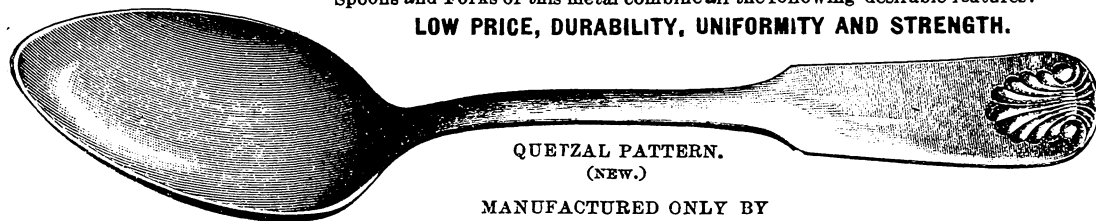
## AZTEC COIN METAL

MADE INTO SPOONS AND FORKS.

Spoons and Forks of this metal combine all the following desirable features:

LOW PRICE, DURABILITY, UNIFORMITY AND STRENGTH.

AZTEC COIN METAL  
has no plating to  
wear off. Made  
of solid metal.  
Easily kept clean.

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(NEW.)

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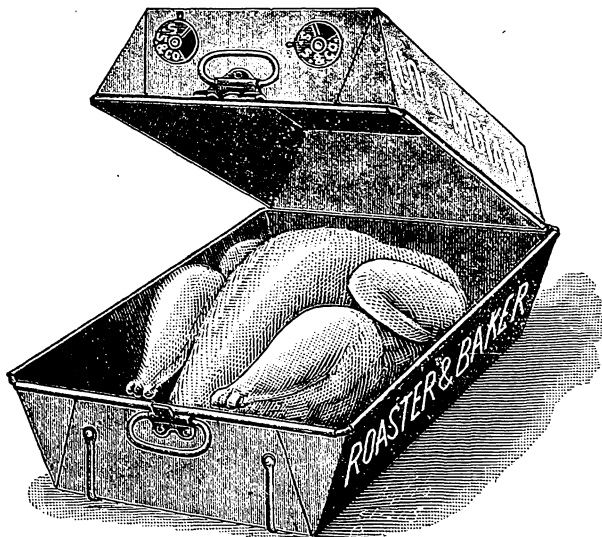
Have You a Good Stock of

## COLUMBIAN ROASTERS AND BAKERS?

THEY OPEN  
AT  
EITHER END.

The fastenings on these  
pans are made of cast iron,  
the upper part hollowed to  
rest on the edge of the  
pan, forming a hinge.  
They are alike on both  
ends, and in combination  
with the handles form a  
simple, secure and durable  
lock. The wires under pan  
add strength and dura-  
bility and allow free cir-  
culation of air under-  
neath.

No. 5, 9 x 13½ x 6 ins., \$1.50  
each.  
No. 10, 11½ x 15½ x 7½ ins.,  
\$2.00 each.  
No. 21, 12½ x 16½ x 7½ ins.,  
\$2.25 each.  
No. 30, 13 x 18 x 7½ ins., \$2.50  
each.  
Liberal discount to the trade.



Sole Manufacturers: { **SIDNEY SHEPARD & CO.,** Buffalo, N. Y.  
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## LIGHTNING DRAIN CLEANER.

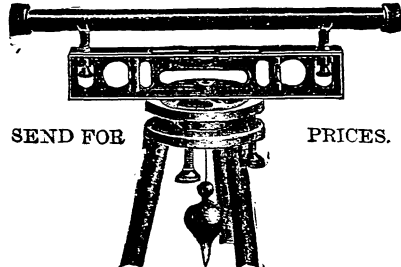
The Drain Cleaner is a hand machine used as a shovel. The dirt pan is made  
No. 18 Steel 3 inches deep and 12 inches long, with vertical end in rear. It  
has a decided advantage over other machines in dipping water and  
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very convenient and saves extra labor of standing and  
working in muddy ditches. The iron adjusting rod  
can be used with great rapidity and ease and  
can be adjusted to pull or push with as  
quick a motion as may be desired.  
To use it in any particular  
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screw.

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Union City, Ind.

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Manufacturers of Iron Levels and Carpenters,  
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**KNAPP & COWLES**  
**MFG. CO.,**

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Makers of a large line of

STANDARD

Hardware Specialties.

SEND FOR

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1892.BUY  
BRADLEY  
BRACKETS!!!

Your Customers will like  
them. They are made of  
steel and are not brittle. They  
are light, strong and artistic.  
They can be put up with  
nail and hammer. Write for  
prices.

**ATLAS MFG. CO.,**  
New Haven, - - Conn.

# DAME, STODDARD & KENDALL,

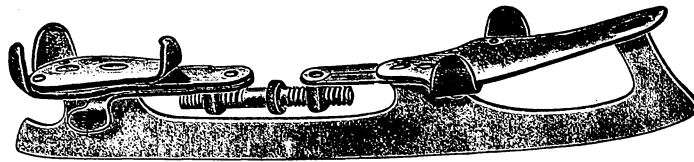
IMPORTERS AND WHOLESALERS,

374 Washington St., Boston, Mass.

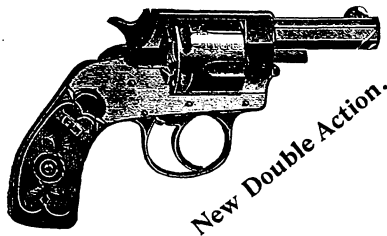
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The SAMUEL WINSLOW SKATE MFG. CO., Worcester, Mass., U.S.A.



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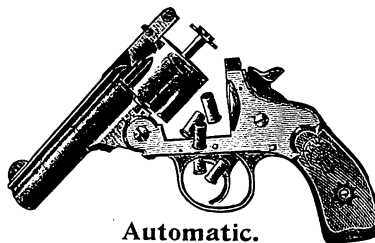
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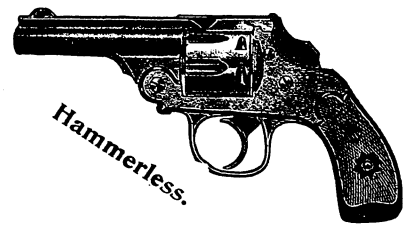
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LINE OF QUICK SELLING

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Automatic.



Hammerless.

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—ALSO—

MANUFACTURERS OF A LARGE LINE OF GUNS  
FOR THE HARDWARE TRADE,  
WORCESTER, MASS.

Diamond  Cycle Wrench  
with Spoke Grip Attachment



Lightest, Neatest and  
Strongest.

ALL STEEL DROP FORGED, CASE HARDENED.  
Weight, 5½ oz., Length, 4¾", Adjustment, 1¼"

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**IT PAYS.** Nothing about a Hard  
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save the goods, make a big show for a small in-  
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Double Action in 32, 38 & 44 Cal.

H. & R. Imp. Ejecting Double Action,

H. & R. Imp. Automatic Double Action,  
In 32 and 38 Caliber.

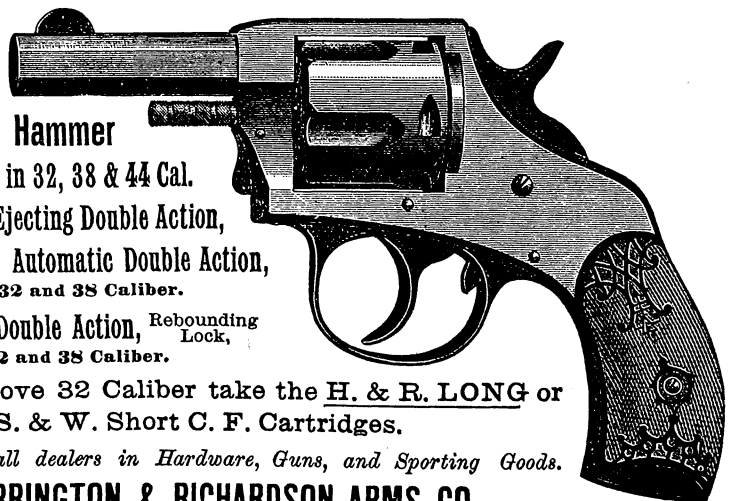
And Premier Double Action, Rebounding  
Lock,  
In 32 and 38 Caliber.

All the above 32 Caliber take the H. & R. LONG or  
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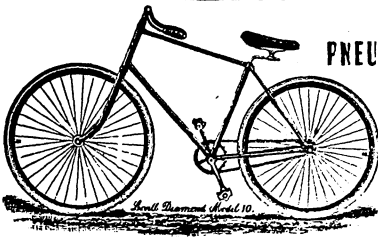
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# Lovell Diamond Cycles

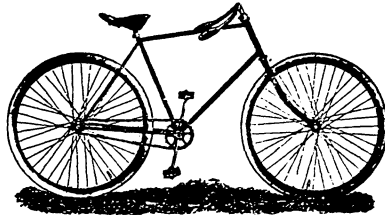


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PNEUMATIC, CUSHION AND SOLID TIRES.  
FOR LADIES AND GENTLEMEN.

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## A Wheel



Properly Designed,  
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## SICKELS, SWEET & LYON,

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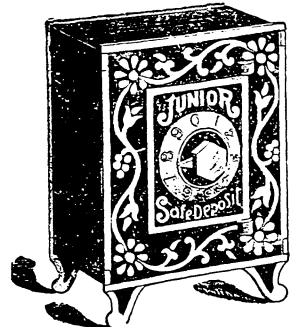
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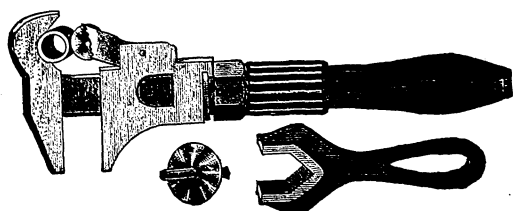
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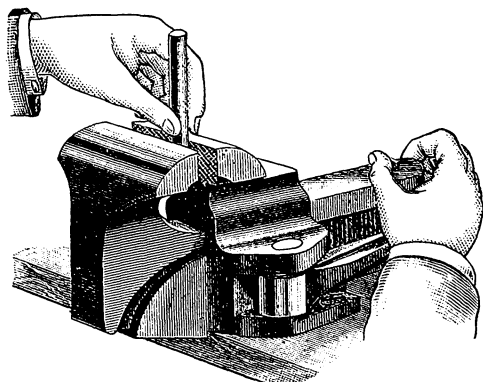
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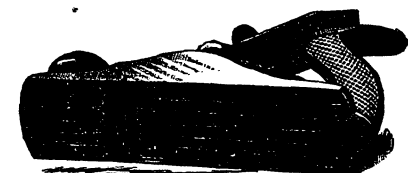
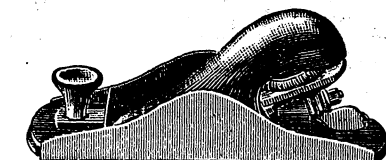
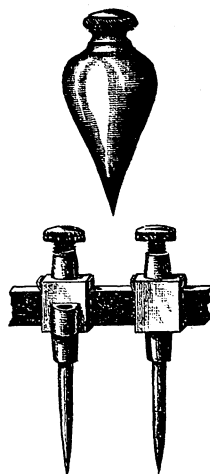
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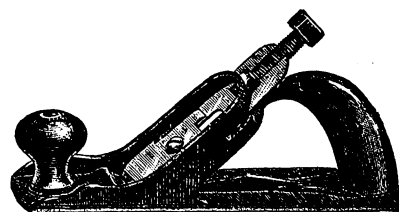
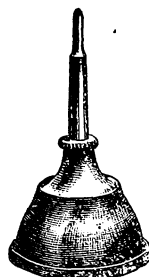
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Challenge Iron Planes.  
Simplicity of Construction.

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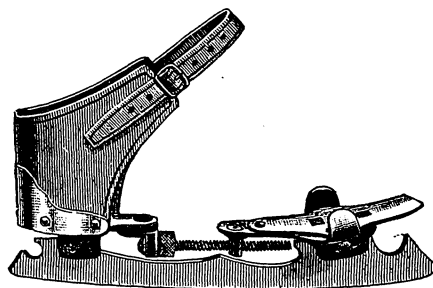
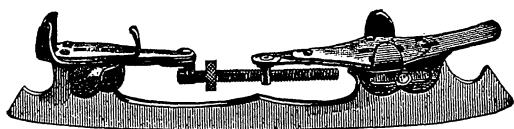
**TOWER & LYON, Manufacturers, - - 95 Chambers St., New York.**

## ICE SKATES

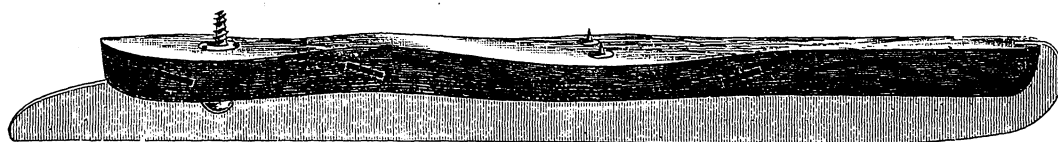
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**DONOGHUE RACING SKATE.**



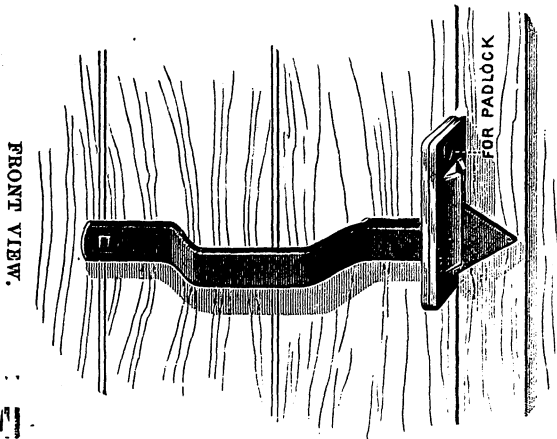
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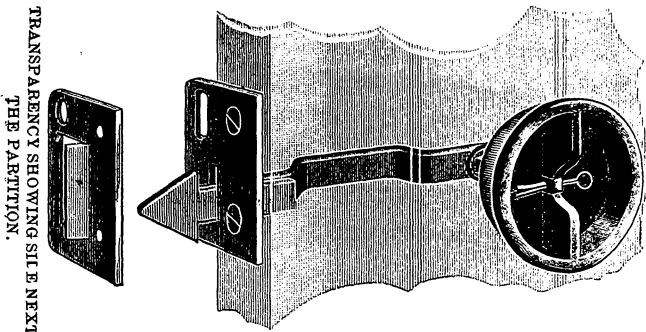
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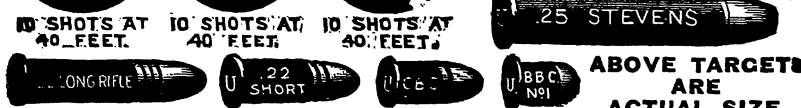
John H. Graham & Co,

113 Chambers St., New York.

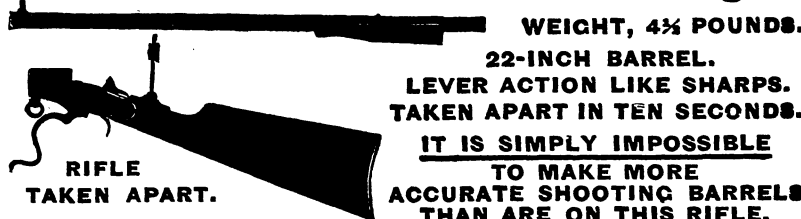


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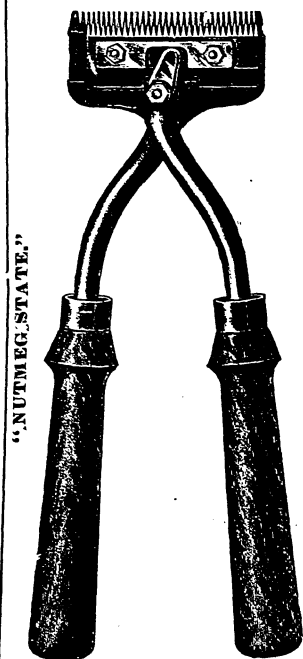
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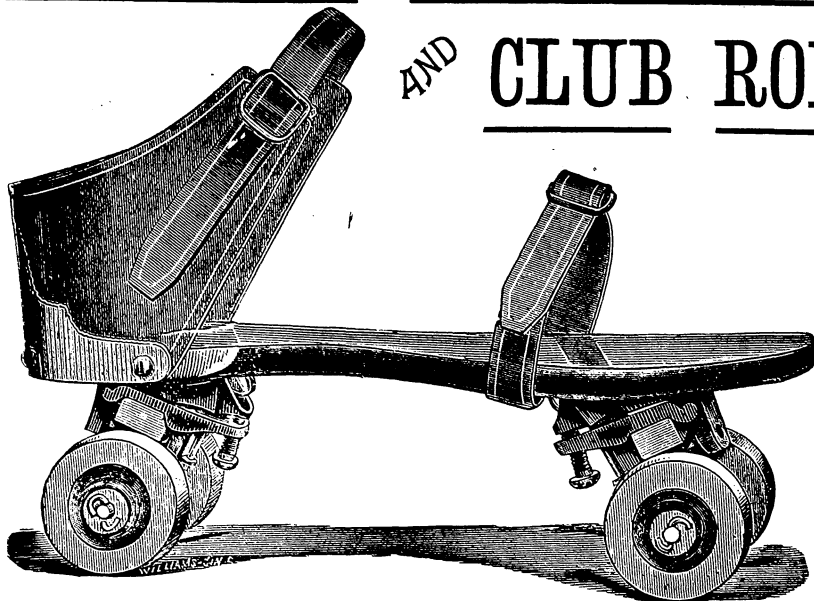
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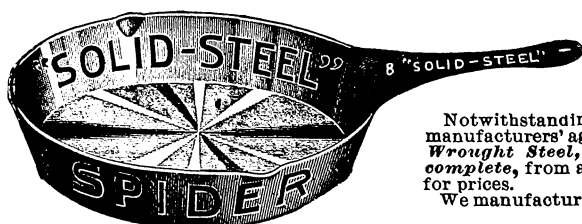
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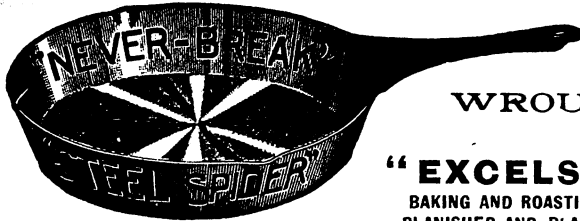


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Best Common Mouse Traps, Steak Hammers,  
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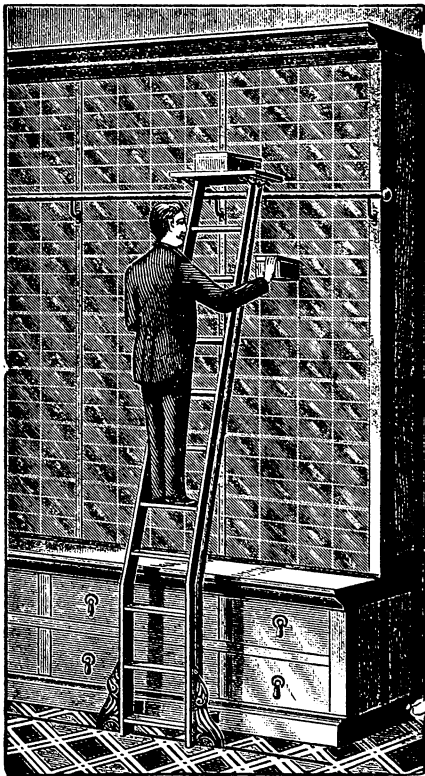
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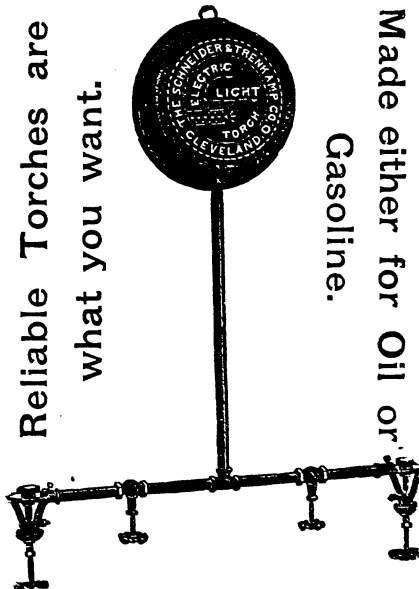
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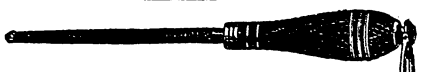
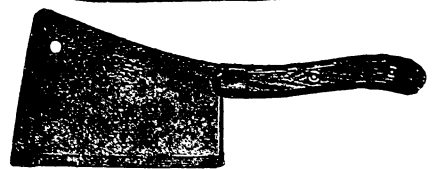


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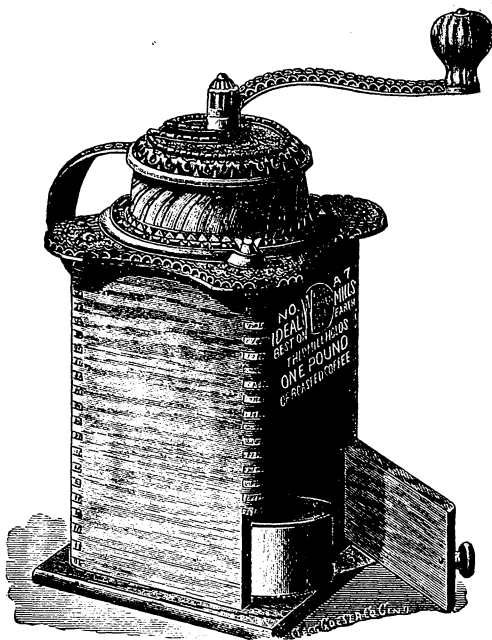


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THEY DO THE WORK.  
Orders solicited. Prices on application.  
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Coffee Mills are fast becoming the Popular Sellers.

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Cathedral Gong Money Drawer and Surprise Rat Traps.**  
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**"THE 'SUN' ONLY, SHINES FOR ALL."**

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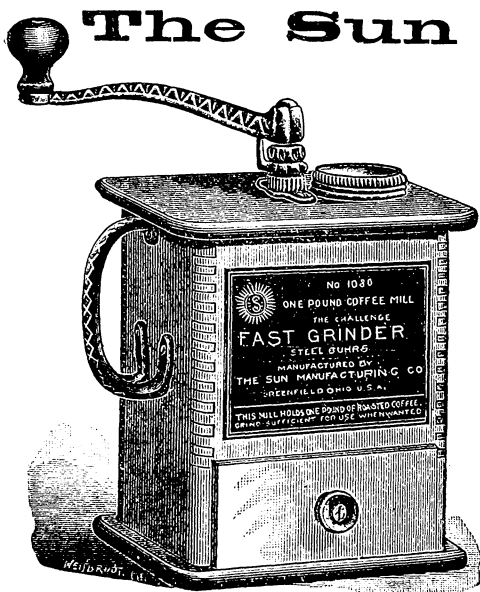
**A New Line of Coffee Mills**

That under the SUN Brand shine as leaders.

**RAPID GRINDERS that will STAND THE WEAR.**

**STEEL ALLOY BUHRS,**

A metal of recent discovery for this purpose used solely and only by the SUN. Warranted to outwear, outgrind and outsell any Coffee Mill ever put on the market.



**We Challenge a Competing Test for Rapid Grinding and Wearing Surface.**

Our New Line bears the Sun Trade Mark and is labeled Steel Alloy Buhrs.

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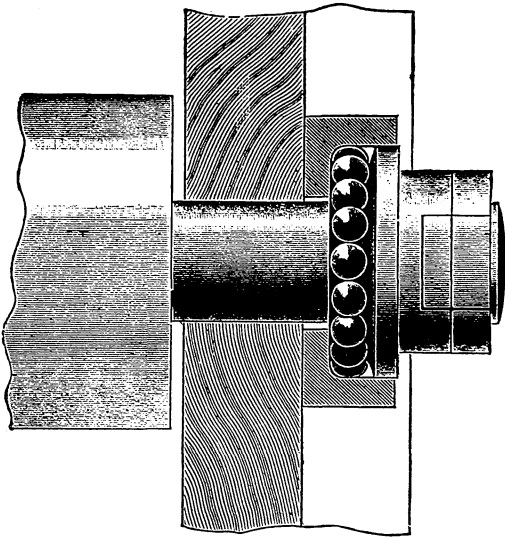
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All wearing parts revolve upon balls.

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Steel spring and changeable apron.

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No. 6, CORN BROOM.

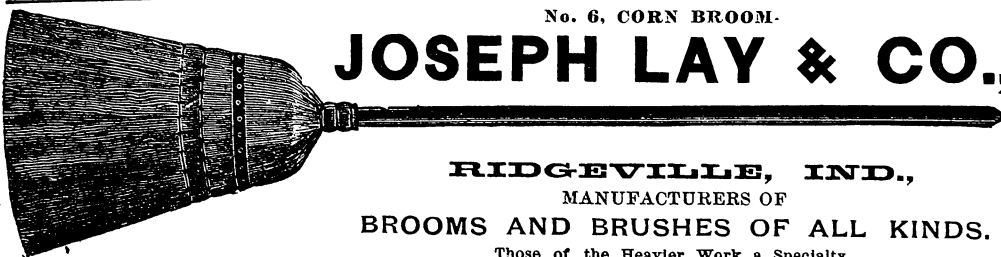
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RIDGEVILLE, IND.,

MANUFACTURERS OF

BROOMS AND BRUSHES OF ALL KINDS.

Those of the Heavier Work a Specialty.

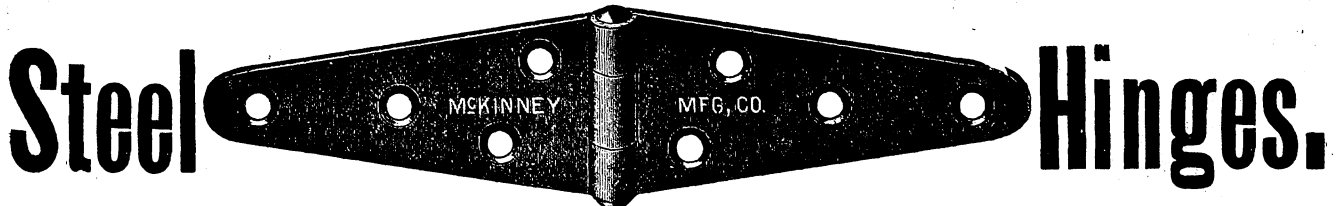


FOR  
RAILROAD, SHOP,  
WAREHOUSE,  
STREET, STABLE,  
BLOOM,  
CHILL, CASTING  
and MOULDERS'  
BRUSHES, &c., &c.

# WE CLAIM

That one pair of our Celebrated Steel Hinges will outwear two pair of the Flimsy Invention now being forced upon the attention of the trade.

## McKINNEY MFG. CO., ALLEGHENY, PA.



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"NONE BETTER."

### BARN, MILL AND FIRE DOOR HANGERS.

#### HIGHEST AWARD

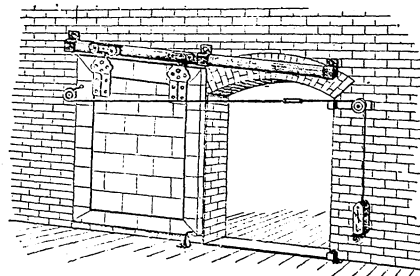
at WORLD'S FAIR, 1893,

—: ON:—

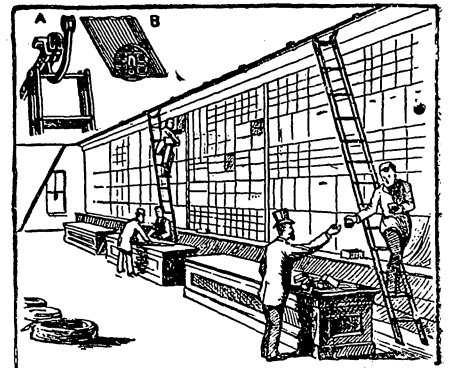
Parlor, Barn and Fire Door  
Hangers.

SEND FOR CATALOGUE.

COBURN TROLLEY TRACK MFG. CO.,  
HOLYOKE, MASS.



Fire Door Hangers. Best in the World. Equipped with Automatic Fire Door Fittings.



We make four styles of ROLLING LADDERS to reach shelving of any height.

# P. & F. CORBIN,

New Britain, Conn.

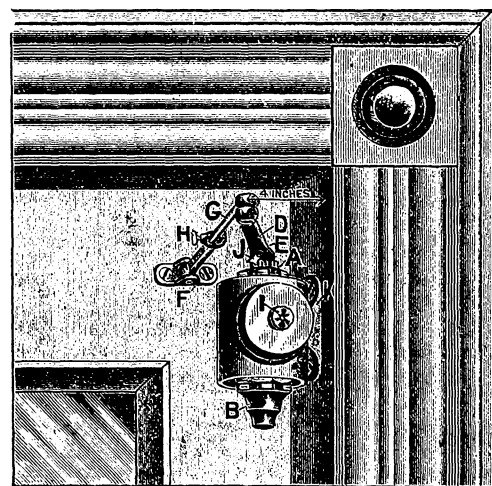
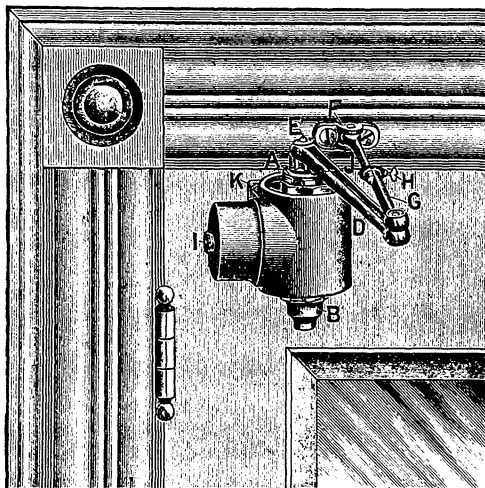
New York.

Philadelphia.

Chicago.

—) MANUFACTURERS OF (—

Easily  
Adjusted  
and Adapted  
for all  
Requirements.



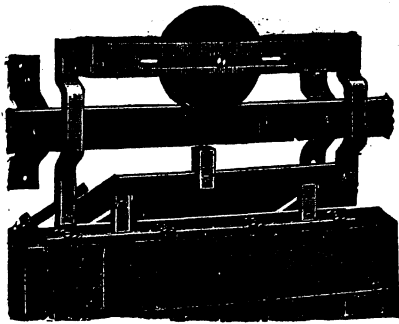
Looks Well,  
Acts Well,  
Wears Well.

## LIQUID DOOR CHECKS AND SPRINGS,

Fine Builders' Hardware. Wood <sup>AND</sup> Machine Screws.

Catalogues and Prices Furnished on Application.

## LANE'S PATENT NOISELESS STEEL PARLOR DOOR HANGER.



This Hanger is made of Steel.  
The Wheel is also Steel, except the filling or tread.  
The Track is of Steel—a single one only.  
The Hanger is Anti-Friction.  
More nearly Noiseless than any other.  
Ease of adjustment.

Can be erected with half the labor others require.  
Track will not swell, shrink or warp out of true.  
No cutting of doors.  
No matching of hardware.  
Simplicity in all its parts.  
Durability.

ALSO LANE BARN DOOR HANGER AND TRACK. SEND FOR CIRCULARS.

Manufactured by

**LANE BROS., Poughkeepsie, N. Y.**  
**JOHN H. GRAHAM & CO., General Agents, 113 Chambers St., New York.**

He had in his possession 55 skeleton keys which the police claim would open any door.  
—Chicago Tribune.

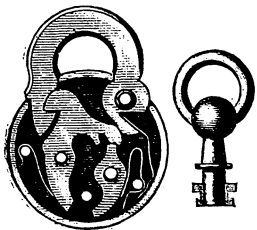
**You are selling** that kind of a lock every day and your customers think you are selling the best the market affords.

**ARE YOU SELLING** the best the market affords?

**The Craig Locks are guaranteed Sneak Thief Proof.**

Send for Catalogue. **KEYLESS LOCK CO., I. A. 197 So. Canal St., Chicago, Ill.**

## PATENT PERFECTION PADLOCK.

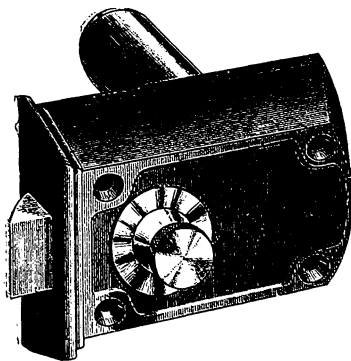


*Eight Tumblers, Key Turning Both Ways.*

Sizes,  $\frac{1}{4}$  inch to  $2\frac{1}{4}$  inches, of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also,  $\frac{1}{2}$  and  $\frac{3}{4}$  inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world.  
Adopted by the United States Treasury for bonded warehouses.

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Send for Price-Lists and Circulars.



### "JACKSON" NON-PICKABLE ALL BRONZE NIGHT LATCH.

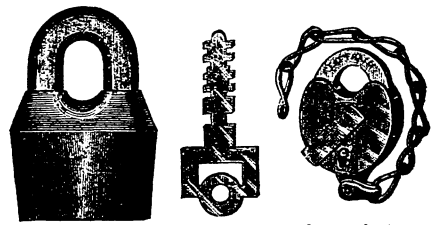
Made also of JAPANNED IRON with BRONZE BOLT and ESCUTCHEON.

Reversible. Adjustable. 3 Plated Steel Keys. No springs, except the bolt spring. Awarded Best Prize at World's Fair, Chicago. Undoubtedly the best latch extant. All are fully guaranteed. We employ no travelers and no agents. Ask your Jobber for our goods. Let us know if our Cat. No. 11 is not on your file.

**MILLER LOCK CO.,**

4515 Tacony Street, PHILADELPHIA, PA.

## ESTABLISHED 1879. KEYSTONE LOCK WORKS, E. T. FRAIM, Lancaster, Pa., U. S. A.



Originators, designers, patentees and manufacturers of all the leading popular styles of **PADLOCKS**, Key-Locking Scandinavian with our patent Inter-Locking Tumblers; the only reliable lock of this style ever made. **SELF-LOCKING** Scandinavian of the highest type of perfection. Dust Proof Railroad, Freight Car and Switch Padlocks. Brass, Bronze, Steel and Malleable Iron Padlocks for all purposes and in all finishes. 131 different kinds. Write for our new 100-page catalogue.

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**SIMPLEST IN CONSTRUCTION.  
EASIEST FITTED.**



**Cheapest and Best  
Balance Made.**

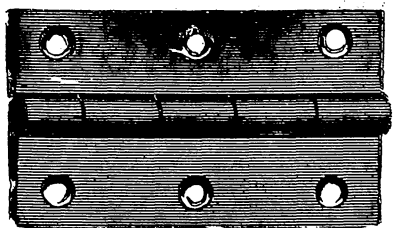
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**The Vanderbilt Sash Balance Co.,  
CANANDAIGUA, N. Y.**  
General Agents, Harmon & Dixon, 118 Chambers St. New York.

## CLOTHES WRINGERS. COLBY WRINCER CO.,

**MONTPELIER, VT.**  
HAVE YOU Our Price-List?

**C. H. WOLFF,**  
177 William St., N. Y.  
STEEL ALPHABETS  
**STEEL NAME STAMPS**  
BURNING BRANDS  
**STENCIL DIES.**  
Send for Catalogue.



## Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

**W. & J. TIEBOUT,**

Nos. 16 & 18 Chambers Street, New York,

MANUFACTURERS OF

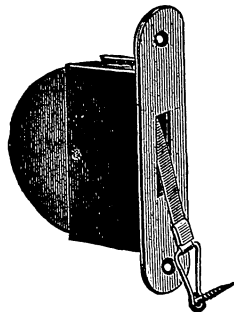
**BRASS, GALVANIZED & SHIP CHANDLERY  
HARDWARE.**

## A Well Balanced Sash

IS LIKE

**A Well Balanced Business Man,**

gives satisfaction to those who are brought in contact with them. Don't be inveigled into buying anything called Sash Balances that have no record. Made from light cast iron. Ask your Hardware dealer for Pullman Steel Frame Sash Balance. Warranted 15 years. Only Steel Frame Sash Balance in the world.



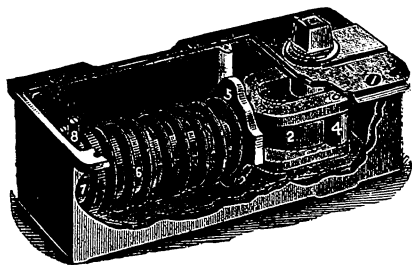
**SIMPLE, CHEAP**

**AND DURABLE.**

**PULLMAN SASH BALANCE CO., Rochester, N. Y.**

New York Office, 142 Chambers St.

Chicago Office, 235 Lake St.

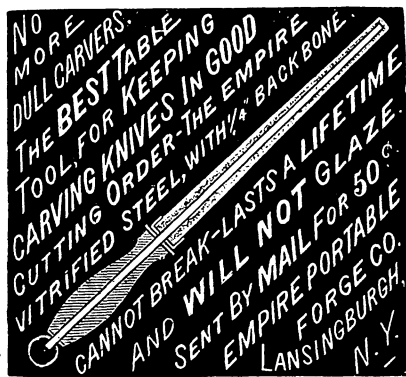


## CHECKING SPRING HINGES FOR SWING DOORS.

Applied in floor under door. They close the door gently, without noise or violence and stop it at once at the centre. Doors cannot sag, springs do not break or set.

**J. BARDSLEY, 149 & 151 Baxter St., New York**

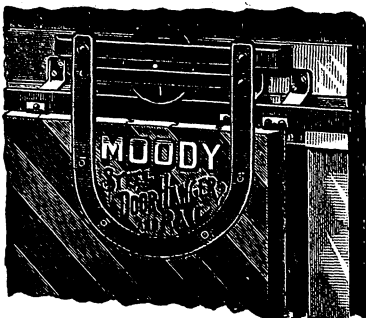
Illustrated Price-List on Application.



N. Y. Office, 108 Chambers St., W. H. QUINN, Manager

**VICTOR MFG. CO., Newburyport, Mass.**

## STEEL RAIL.



Showing one-half set of hangers attached to door.

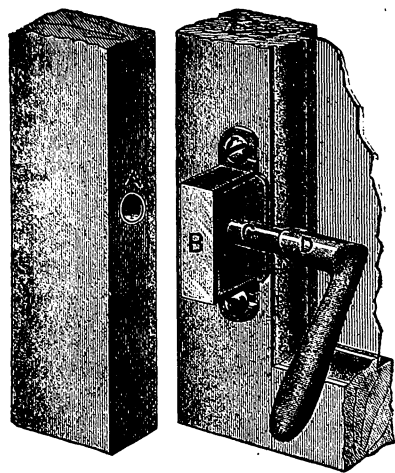
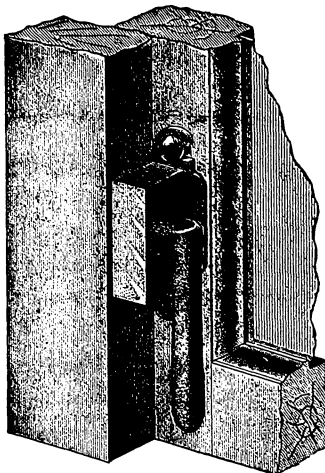


The Only Bracing Bracket Made.

### PRICE-LIST.

HANGERS.	Per Doz. prs.
No. 5, to run 6 feet, 3 1/4 in. wheel, -	\$10.00
No. 6, to run 10 feet, 4 1/4 in. wheel, -	15.00
No. 7, to run 15 feet, 5 1/4 in. wheel, -	22.00
RAIL, per foot.....	6 1/2 cents

## DOLBER'S SASH FASTENER.



Patented August 1, 1893.

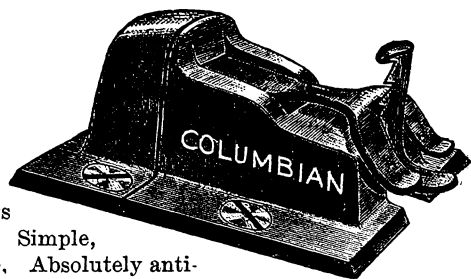
The best device ever invented for fastening outside, storm or double windows, and all similar purposes. Saves Time, Labor and Expense.

**F. V. WOOSTER, Manufacturer,**

**66 Beverly St., BOSTON.**

## Columbian Sash Lock.

Locks three ways with one motion. Simple, strong and durable. Absolutely anti-rattle and burglar proof. Sample by mail, 35c.



**COLUMBIAN SASH & DOOR LOCK CO.,  
WAUSEON, OHIO.**

## THE CLARK MFG. CO.,

Blind Hinges, Gate Hinges, Door Butts,  
And other **HARDWARE SPECIALTIES**  
**BUFFALO, N. Y.**

### HARDWARE DEALERS

CAN RECOMMEND THE

## CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

MANUFACTURED ONLY BY

**"THOMAS MORTON,"**

65 Elizabeth Street,

Write for Prices.

**NEW YORK.**

## P. J. Conroy & Co.,

Paschall, PHILADELPHIA.

**"CONROY"**

**Refrigerator Door  
Fasteners**



Pat. Dec. 15, '85

Have rapidly supplanted all others.

Refrigerator Trimmings.

**3**

NICKLE, Silver and Bronze Metallic Figures and Letters, Sizes 1/4 in to 3 in. Pattern Letters, Steel Stamps, Brands, Dies &c. Send for Reduced Price List. We make a specialty of the Hardware Trade. **A. A. WHITE & CO., Providence, R.I.**

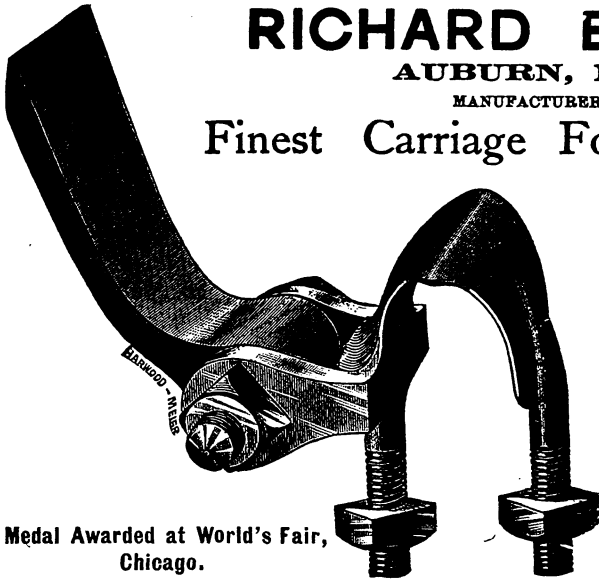


All Tags and Labels on Covert Goods bear the above Trade-Mark, and are sold by all Leading Jobbers in General and Saddlery Hardware at Manufacturers' Prices.

**COVERT MFG. CO.,**  
WEST TROY, N. Y.

**RICHARD ECCLES,**  
AUBURN, N. Y.,  
MANUFACTURER OF

Finest Carriage Forgings, Couplings, Clips, King Bolts, Fifth Wheels, &c. Manufacture a full line Special Drop Forgings.



Medal Awarded at World's Fair, Chicago.

Send for New Catalogue for Season 1893-94.

**WHY USE WOODEN OR HEAVY STEEL BLOCKS**

WHEN THE STEEL AND IRON

**TACKLE BLOCKS**

—MADE BY—

**The Cleveland Block Co.**

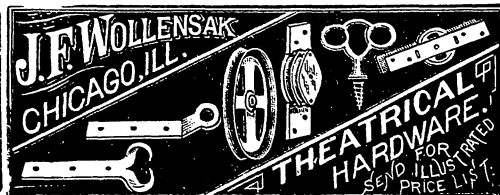
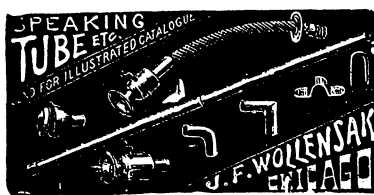
CLEVELAND, OHIO, U. S. A.,

**ARE BETTER IN EVERY WAY.**

No waste material. Every ounce of weight in the line of strength. No clumsy outside straps or bolts. As light as wooden blocks and vastly more durable. They wear, but never break. Sheaves interchangeable.

General Agents: Topping Brothers, 92 Chambers Street, New York  
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New England Agents, - Dodge, Haley & Co., 212 High Street, Boston

**STEEL. WOOD OR IRON**  
—MADE BY—  
**TOLEDO BLOCK WORKS.**  
511-513-515 Water St., TOLEDO, OHIO,  
WILL PROVE SATISFACTORY  
**TO USER.**



**FROST'S ANTI-RATTLER**

Pat. Jan. 20, 1880.

Cut One-half Size.

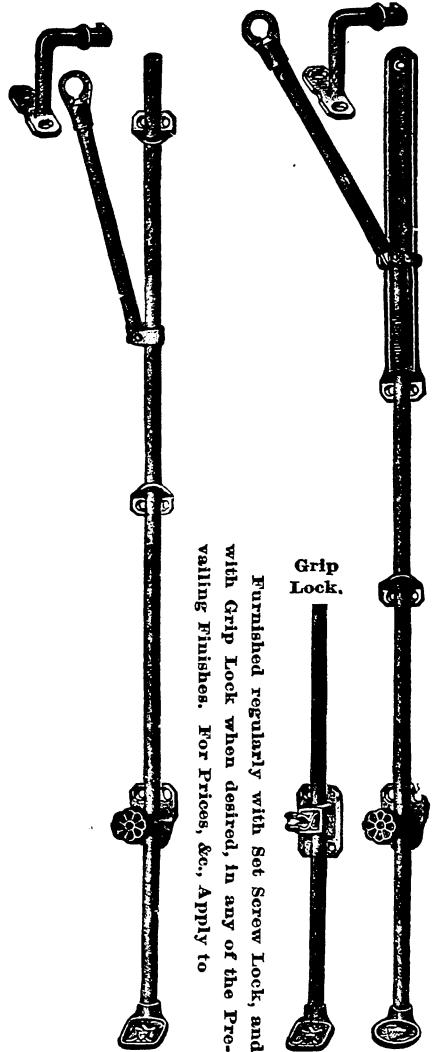
Sample pair sent to any hardware or saddlery firm by addressing

The Frost Thill Spring Co.,  
Boston, Mass.

**TRANSOMLIFTERS**

"EAGLE."

"SHIELD."



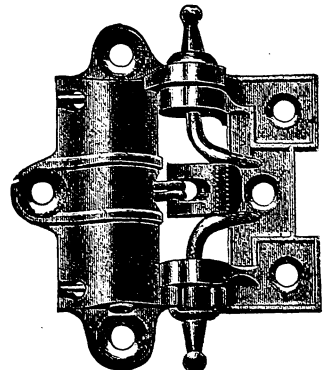
Furnished regularly with Set Screw Lock, and with Grip Lock when desired, in any of the prevailing Finishes. For Prices, &c., Apply to

Grip Lock.

**J. F. WOLLENSAK, PATENTEE**

CHICAGO, ILLINOIS.

**NEW IDEA SPRING HINGE**



Holds the door strongest when closed.

Resistance gradually decreases in opening

and increases in closing the door.

A covered (patented) hold-back Spring Hinge. Full particulars, free Sample and Prices by mentioning this paper.

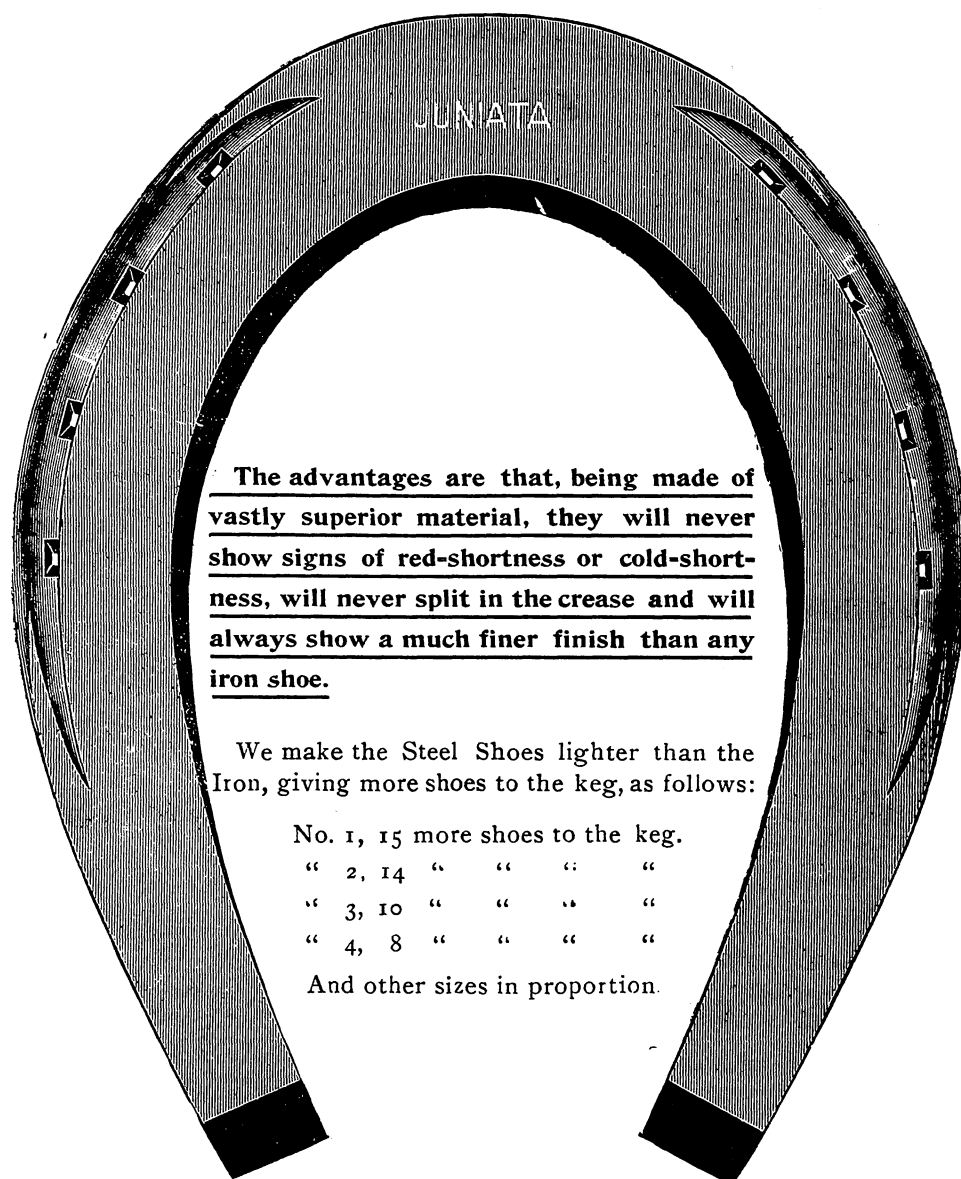
**STOVER MANUFACTURING CO.,**

145 River St., Freeport, Ill.

# STEEL HORSE SHOES.

SHOENBERGER & CO., PITTSBURGH, PA.,

After numerous and costly experiments have succeeded in manufacturing a special quality of soft homogeneous steel, specially adapted to the manufacture of Horse and Mule Shoes, and are now making from this steel Extra Swaged, and Government Pattern Horse and Mule Shoes. They give the best of satisfaction everywhere and we furnish them to the trade at the same prices as the regular iron shoe sold by ourselves and our competitors. We are at present making our Roadster Pattern Horse Shoes out of Iron, but we will make them of Steel also within a short time.



The advantages are that, being made of vastly superior material, they will never show signs of red-shortness or cold-shortness, will never split in the crease and will always show a much finer finish than any iron shoe.

We make the Steel Shoes lighter than the Iron, giving more shoes to the keg, as follows:

No. 1, 15 more shoes to the keg.

" 2, 14 " " " "

" 3, 10 " " " "

" 4, 8 " " " "

And other sizes in proportion.

**No. 2 EXTRA SWAGED FRONT.**

We also beg to say that we have introduced improved machinery into our new factory and have doubled our capacity, and are now prepared to furnish the best shoe, either iron or steel, ever offered to the trade.

We would also call your attention to our Improved Steel Toe Calk, equal to any in the market. To secure the best wearing qualities use sand or borax in welding on a calk and cool off at a dark red, or still better, cool off without plunging in water. We make sizes numbers 1, 2, 3, 4, 5 and 6, packed in 25 pound boxes.

Write to us for information and prices, or apply to jobbers and dealers, who sell them everywhere.

**SHOENBERGER & CO.,**

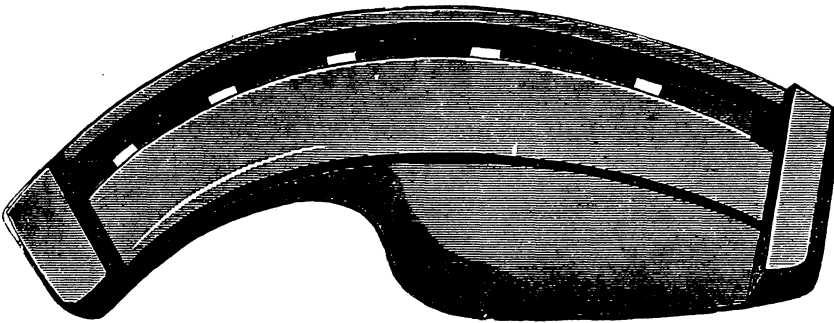
**JUNIATA IRON AND STEEL WORKS, - - - PITTSBURGH, PA.**

# SCRANTON FORGING CO.,

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## CARRIAGE HARDWARE AND SPECIAL DROP FORGINGS.

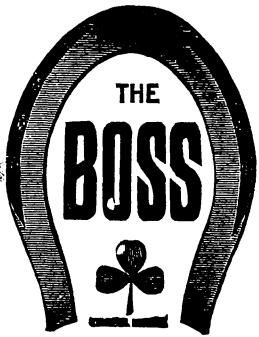
FORGED  
OX  
SHOES.



Made under Deeble's Patent, Aug. 9, 1887.

Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

IT IS JUST RIGHT.



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Superior Quality, Shape and Finish.

**BRYDEN HORSE SHOE CO.,**  
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MANUFACTURERS OF

### Horse and Mule Shoes of the Perkins Pattern.

SPECIALTIES:—X L Steel Shoes, Toe Weight Shoes and Goodenough Shoes.

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Office, 31 Exchange Place, Providence, R. I.

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## THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and YOU will say they excel all others.

MANUFACTURED BY

**DIAMOND STATE IRON CO.**  
WILMINGTON, DELAWARE.

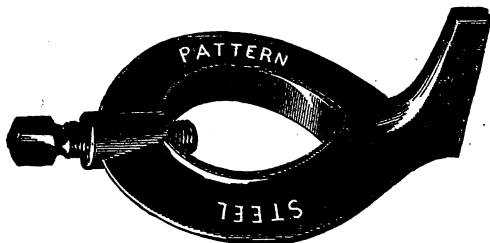
Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blunt Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

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{ Correspondence invited }

NEW YORK OFFICE  
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## LE COUNT'S LIGHT STEEL DOG,



WITH STEEL SCREWS.

U. S. Standard.			Points Hardened.		
No.	Inch.	Price.	No.	Inch.	Price.
1.....	3/8	\$0 35	7.....	1 3/4	\$1 00
2.....	1/2	35	8.....	2	1 10
3.....	3/4	50	9.....	2 1/2	1 40
4.....	1	60	10.....	3	1 50
5.....	1 1/4	75	11.....	3 1/2	1 70
6.....	1 1/2	85	12.....	4	1 90

Small set of 8, \$5.50. Full set of 12, \$12.

SEND FOR CATALOGUE OF FULL LINE OF MACHINISTS' TOOLS.

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These goods are for sale by CHAS. CHURCHILL & CO., Ltd., 21 Cross St., London, England.

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"Burden Best"

Iron

Boiler Rivets.

The Burden Iron Co.

TROY, N. Y.

## PHOENIX HORSE SHOES.

PHOENIX HORSE SHOE CO.,

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NEW YORK OFFICE, No. 66 Reade St.

**Standard Horse Shoe Co.,**

Manufacturers of

**HORSE AND MULE SHOES.**

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4 Liberty Square, Boston, Mass.



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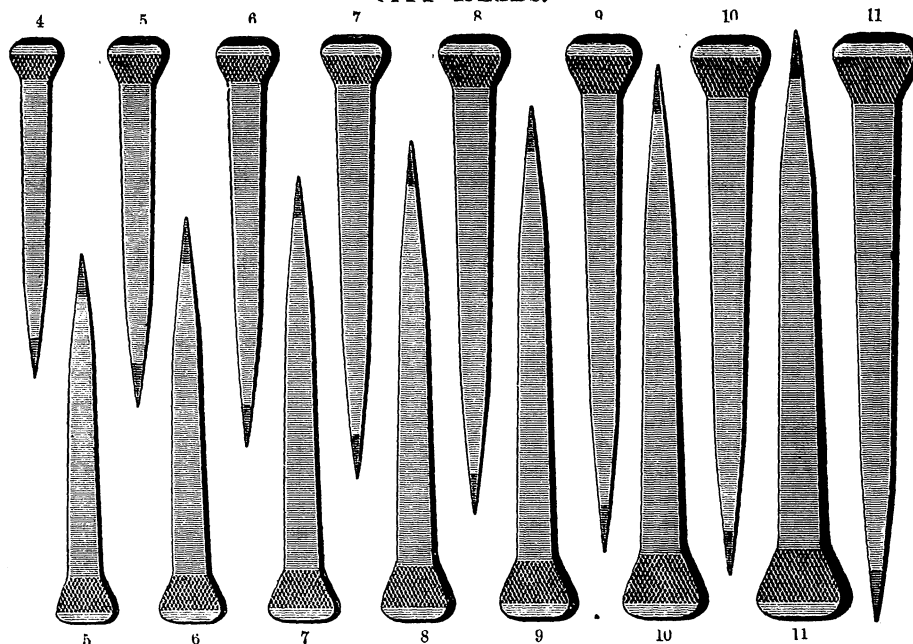
AT

WORLD'S COLUMBIAN EXHIBITION.

## CAPEWELL HORSE NAILS.

*"Tensile strength one-half greater than that of any other nail made."*

CITY HEADS.



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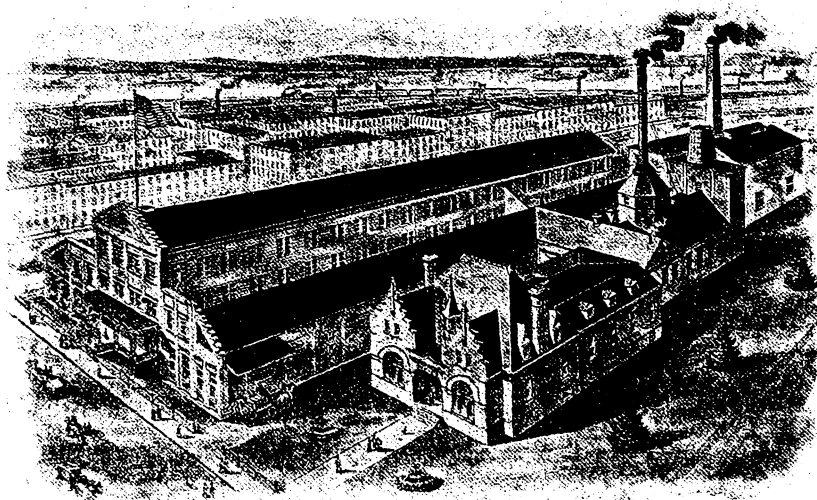
### The Capewell Patent Corrugated Horse Nail.

Needs no  
Clinching.

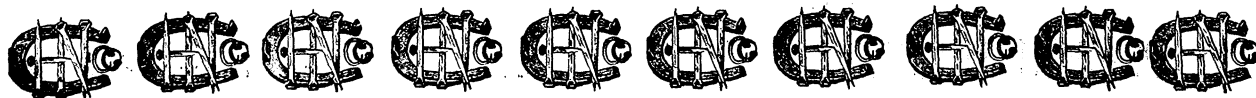


Made in  
All Sizes.

*"The Coming Nail to be Used."*—JOHN KIERNAN,  
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**The Capewell Horse Nail Co.,**  
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# H. D. SMITH & CO.,

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MANUFACTURERS OF THE BEST QUALITY

## CARRIAGE MAKERS' HARDWARE,

MANUFACTURE THE LARGEST VARIETY OF

# FORGED CARRIAGE IRONS

Of Best Material and Workmanship.

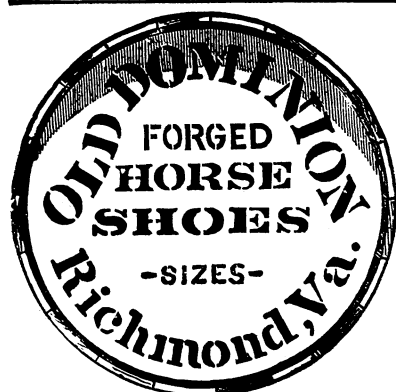
Send for Price and Illustrated List of

# CHAMPLAIN

Manufactured by the **NATIONAL HORSE NAIL CO.,**  
VERGENNES, VERMONT.

All Sizes. All Patterns. All Warranted. Sold Everywhere.

J. C. McCARTY & CO., Agents. New York.



Elegant Iron.

Beautiful Shape.

**HORSE SHOES,**  
*Light, Medium and Heavy.*  
**MULE SHOES,**  
*Light, Medium and Heavy.*

Illustrated booklet and prices to all parts of the world on application.

**OLD DOMINION IRON AND NAIL WORKS CO.,**

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Chicago Office, 45 La Salle St.

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## All Wrought Steel Center Neck Yoke.



The Strongest, Lightest, Cheapest Yoke on the Market.

Send for Price-List and Discount.

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**P. F. BURKE, C. F. DEWICK & CO.**  
Successor to  
Manufacturer of  
**PATENT STEEL**  
(Blunt and Sharp)  
**TOE-CALKS.**  
—ALSO—  
BURKE'S IMPROVED  
**HORSESHOERS'**  
**FOOT VICE.**  
Send for Circulars.  
360 DORCHESTER AV. Die for Welding  
BOSTON, MASS. Sharp Calks.

## AXLEINE



is a fine quality of Axle Grease put up in square tin boxes containing one pound; beautifully decorated in assorted colors; designed especially for the Hardware Trade. Showy and attractive shelf goods.

Send for sample and prices.

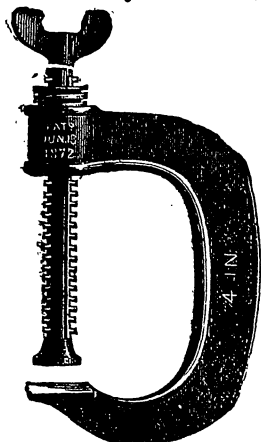
**LOVELL, TRACY & CO.** 71 Asylum St. Hartford, Conn.

**Crescent**  
**Horse and Mule Shoes,**  
**BAR IRON.**

**CRESCENT HORSE SHOE AND**  
**IRON CO.,**  
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# BUFFALO SCALE CO., Buffalo, N. Y. SCALES OF ALL KINDS.

PATENTED ARTICLES  
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**MALLEABLE IRON.**  
Hammer's Adjustable Clamps.



Hammer's Malleable Iron Oilers, 3 Sizes.  
Malleable Iron Hand Lamps.  
Malleable Iron Hanging Lamps.

**NEW** Pattern Heavy Screw Clamps.  
Strongest in the market.  
For sale by all the principal Hardware dealers  
Send for Price List.

**MALLEABLE IRON CASTINGS**  
of superior quality and Hardware Specialties  
in Malleable Iron made to order.

**HAMMER & CO.,**  
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**HOWARD IRON WORKS,**  
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## BENCH VISES.

Price Lists sent on application.



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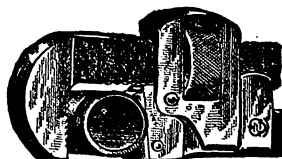
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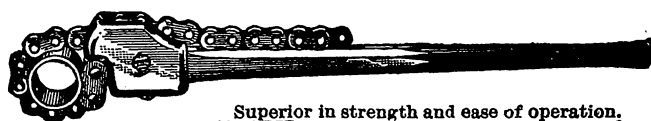
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All parts interchangeable.

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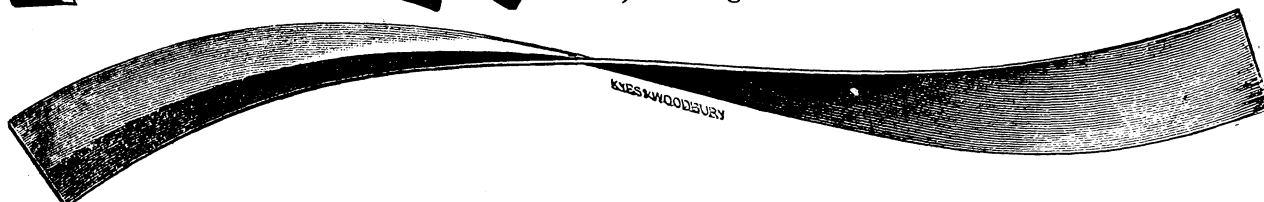
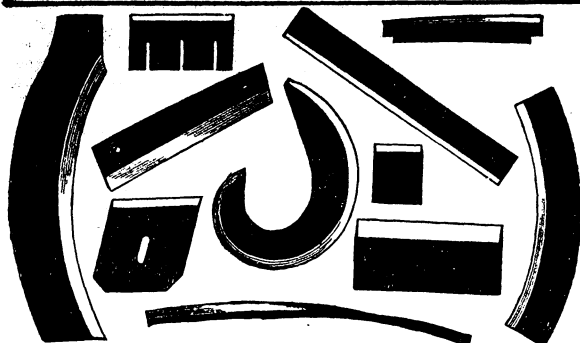
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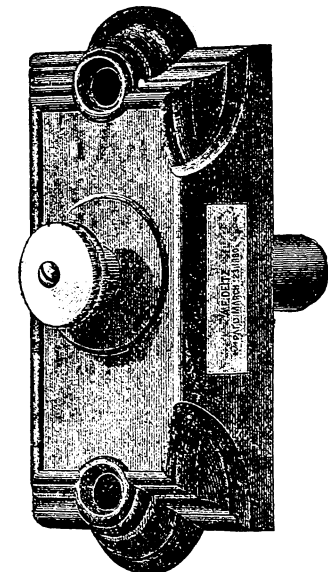
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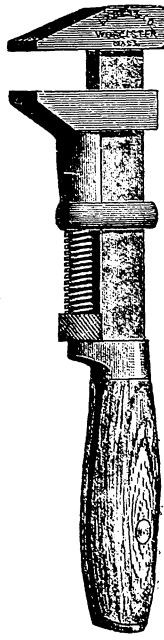
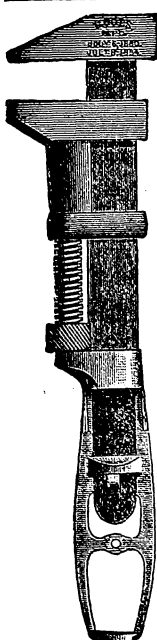
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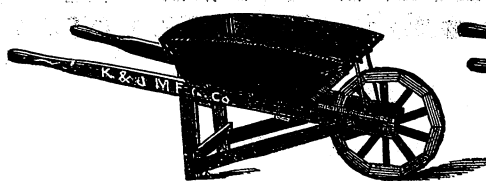
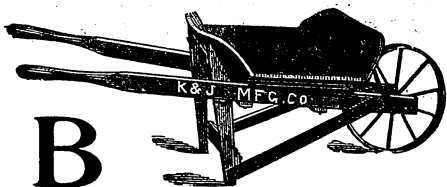


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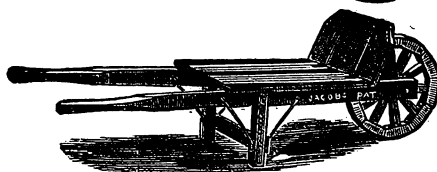
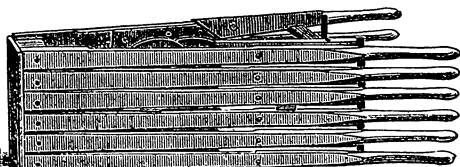
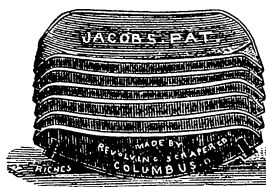
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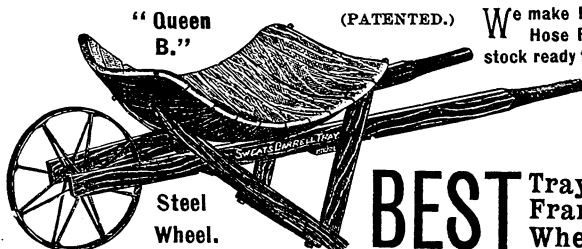
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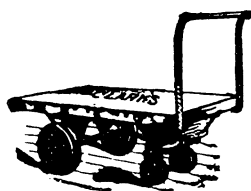
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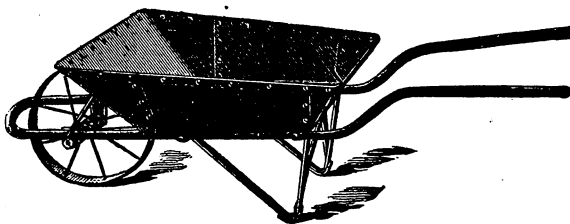
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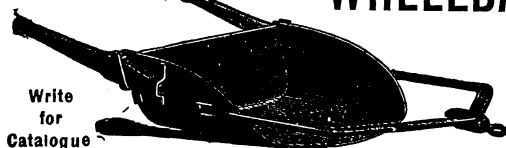
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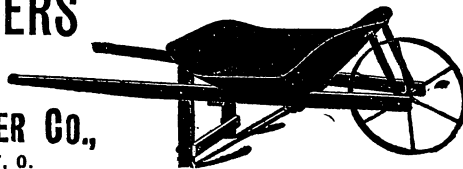
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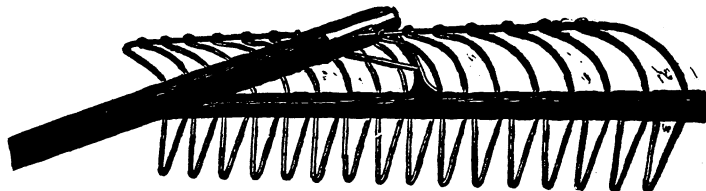


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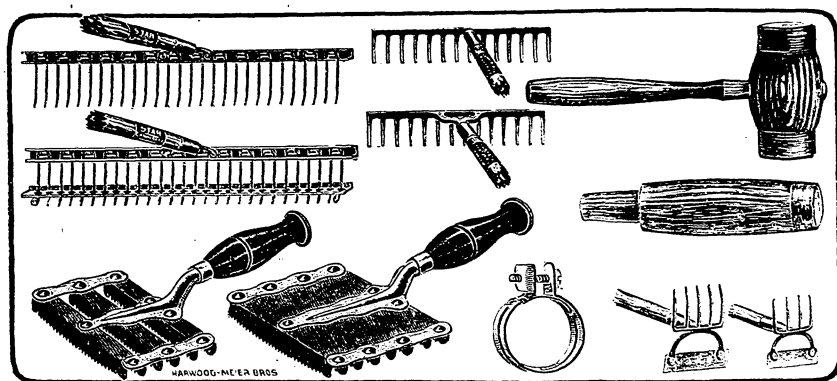
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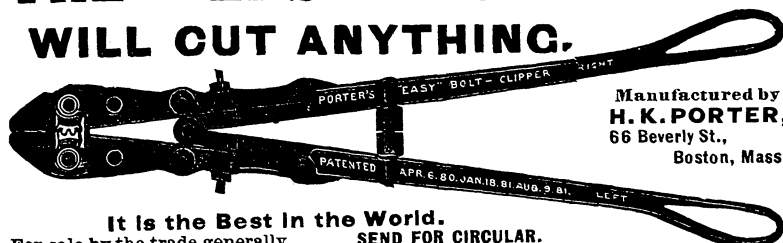


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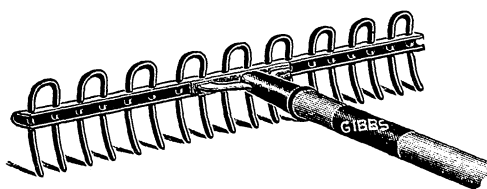
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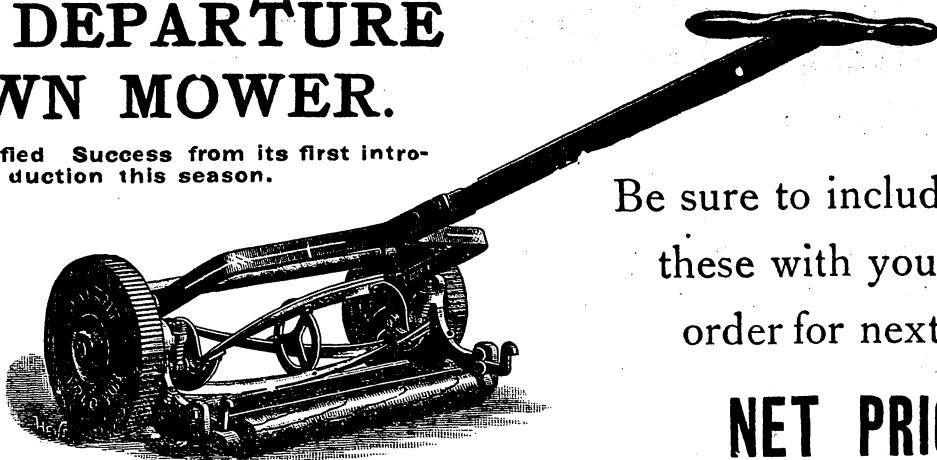
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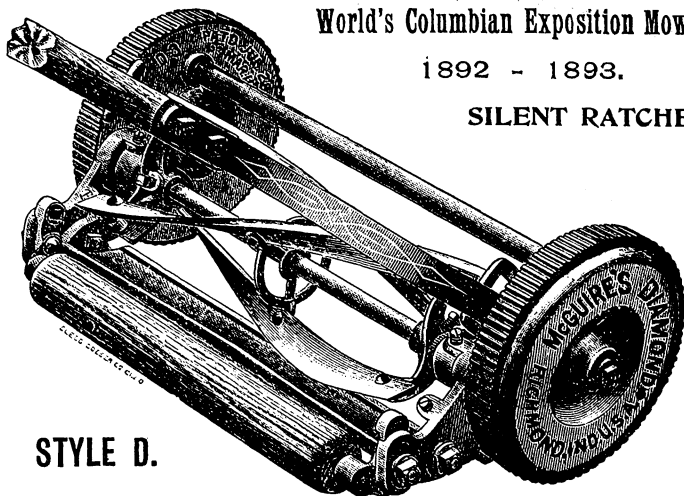
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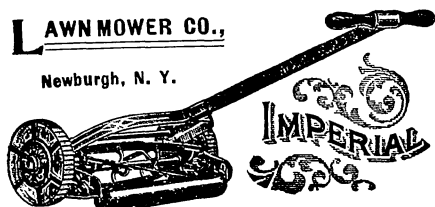
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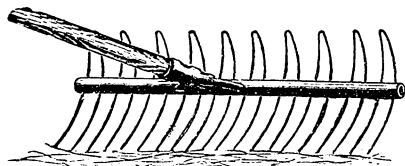
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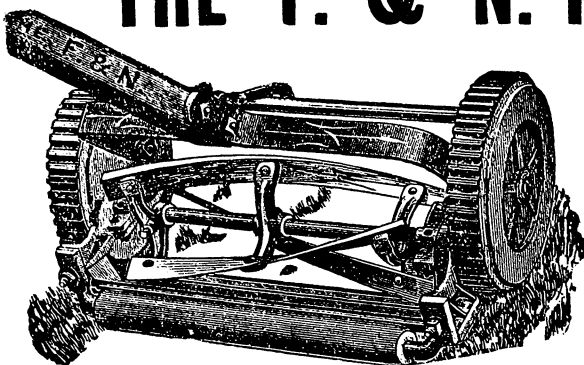
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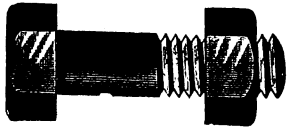
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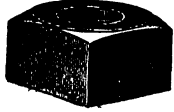
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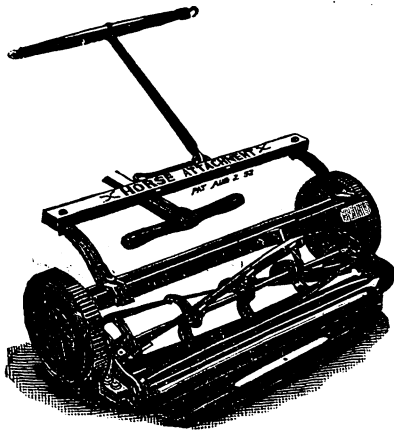
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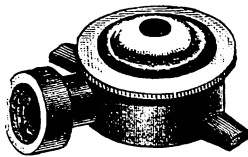
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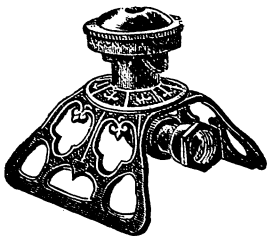
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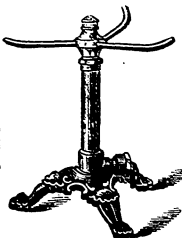


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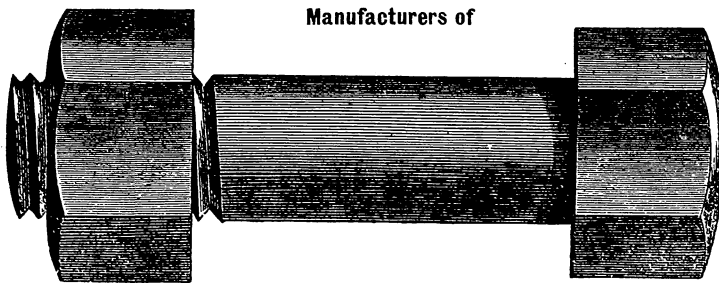
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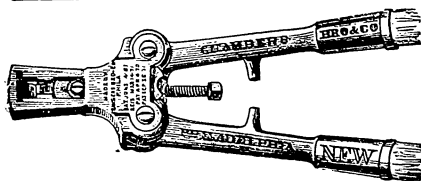
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 Diamond Clamp & Flask Co., Richmond, Ind.  
 S. Obermayer Co., Cincinnati, O.  
 Smith, J. D. Fdy. Supply Co., Cinn., O.
- Friction Clutches.**  
 Keystone Clutch & Mch. Wks., Phila., Pa.  
 Moore & White Co., Philadelphia, Pa.
- Friction Cone.**  
 Evans Friction Cone Co., Boston, Mass.
- Fruit Presses.**  
 Enterprise Mfg. Co., Philadelphia, Pa.
- Gas Producers.**  
 Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**  
 Panoosast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**  
 Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**  
 D. E. Whiton Mach. Co., New London, Conn.
- Gears.**  
 Boston Gear Works Boston, Mass.  
 Gleason Tool Co., Rochester, N. Y.  
 Foote, Robt. & Son Co., Baltimore, Md.
- Glass Cutters.**  
 Monce, S. G., Bristol, Conn.
- Glass Tubes.**  
 Ashcroft Mfg. Co., 111 Liberty St., N. Y.
- Glue.**  
 Baeder, Adamson & Co., Phila., Pa.  
 Russell Cement Co., Gloucester, Mass.
- Grass Catchers.**  
 Supplee Hardware Co., Phila., Pa.
- Grass Hooks.**  
 Bruce & Marks Mfg. Co., Gas City, Ind.
- Grinding and Polishing Machines.**  
 Herrick & Cowell, New Haven, Conn.  
 Norton Emery Wheel Co., Worcester, Mass.  
 Washburn Shops, Worcester, Mass.
- Grindstone Dressing Machinery.**  
 Blake & Johnson, Waterbury, Conn.
- Grindstones.**  
 Cleveland Stone Co., Cleveland, O.
- Gun Implements.**  
 Union Hdw. Co., Torrington, Conn.
- Gunpowder. Makers of.**  
 Laffin & Rand Powder Co., 29 Murray St., N. Y.
- Hand Carts.**  
 Lansing Wheelbarrow Co., Lansing, Mich.
- Handles.**  
 New York Mallet and Handle Wks., 456 E. Houston St., N. Y.
- Hangers. Door.**  
 Coburn Trolley Track Mfg. Co., Holyoke, Mass.  
 Cronk Hanger Co., Elmira, N. Y.  
 Lane Bros., Poughkeepsie, N. Y.  
 Victor Mfg. Co., Newburyport, Mass.
- Hardware Comm'n Merchants.**  
 Doscher, Martin, 88 Chambers, N. Y.  
 Field, Alfred & Co., 93 Chambers St., N. Y.  
 Graham, John H. & Co., 111 Chambers St., New York.  
 Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Manufacturers.**  
 Hotchkiss, E. S. Bridgeport, Conn.  
 Stearns, E. C. & Co., Syracuse, N. Y.  
 Union Mfg. Co., 103 Chambers, N. Y.  
 Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**  
 Bingham, W. Co., Cleveland, O.  
 Graham, John H. & Co., 113 Chambers, N. Y.  
 McCoy, Jos. F. Co., 28 Warren St., N. Y.  
 Sickles, Sweet & Lyon, 35 Barclay, N. Y.
- Hardware Specialties.**  
 Aome Shear Co., Bridgeport, Conn.  
 Belden Machine Co., New Haven, Conn.  
 Clark Mfg. Co., Buffalo, N. Y.  
 Empire Portable Forge Co., Lansingburg, N. Y.  
 Enterprise Mfg. Co., Philadelphia, Pa.  
 Ette & Henger Mfg. Co., St. Louis, Mo.  
 Gwinner Mfg. Co., Hamilton, O.  
 Haines & Zimmerman, Phila., Pa.  
 Hart, T. C. Mfg. Co., Detroit, Mich.  
 Hills, Edwin, Plainville, Conn.  
 Johnson, S. C., Racine, Wis.  
 Knapp & Cowles Mfg. Co., Bridgeport, Conn.  
 New Britain Hdw. Mfg. Co., New Britain, Conn.  
 North Bros. Mfg. Co., Philadelphia, Pa.  
 Peabody & Parks, Troy, N. Y.  
 Shepard, Sidney & Co., Buffalo, N. Y.  
 Welland, Chas., 119 Chambers St., N. Y.  
 Wilson, J. Fred, Worcester, Mass.
- Hardware, Yacht and Ship.**  
 Ferdinand, L. W. & Co., Boston, Mass.
- Harness Snaps.**  
 Covert Mfg. Co., West Troy, N. Y.  
 Coverts' Saddlery Wks., Farmer, N. Y.  
 Fitch, W. & E. T., New Haven, Conn.
- Hay Knives.**  
 Bruce & Marks Mfg. Co., Gas City, Ind.  
 Hoyt, Hiram, Co., E. Wilton, Me.
- Holisting Machines.**  
 Box, Alfred & Co., 314 Green, Phila.  
 J. Brown Holisting & Conveying Mch. Co., Cleveland, Ohio.  
 Conneland & Bacon, 85 Liberty St., N. Y.  
 Iron & Engine Wks., Detroit, Mich.  
 Harrington, E., Son & Co., Phila.  
 Lane Bros., Poughkeepsie, N. Y.  
 Lidgerwood Mfg. Co., 98 Liberty, N. Y.  
 Maris & Beekley, Philadelphia.  
 Moore Mfg. & Fdy. Co., Milwaukee, Wis.  
 Morse, Williams & Co., Phila.  
 Sellers, Wm. & Co., Phila. and N. Y.  
 Spidel, J. G., Reading, Pa.  
 Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow Ware.**  
 Bronson Supply Co., Cleveland, Ohio.  
 Cleveland Stamping & Tool Co., Cleveland, O.
- Hollow Ware, Aluminum.**  
 Illinois Pure Aluminum Co., Lemont, Ill.
- Horse and Barbers' Clippers.**  
 Hotchkiss, E. S., Bridgeport, Conn.
- Horse Nails, Makers of.**  
 Caswell Horse Nail Co., Hartford, Conn.  
 National Horse Nail Co., Vergennes, Vt.
- Horse and Mule Shoes. Makers of.**  
 Bryden Horse Shoe Co., Catsaqua, Pa.  
 Burden Iron Co., Troy, N. Y.  
 Crescent Horse Shoe & Iron Co., Max Meadows, Va.  
 Diamond State Iron Co., Wilmington, Del.  
 Old Dominion Iron & Nail Works Co., Richmond, Va.  
 Phoenix Horse Shoe Co., Poughkeepsie, N. Y.  
 Rhode Island Perkins Horse Shoe Co., Providence.  
 Shoemaker & Co., Pittsburgh, Pa.  
 Standard Horse Shoe Co., Boston, Mass.
- Hose.**  
 N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.
- Hydrants, &c.**  
 McLean, John, 296 & 298 Monroe, N. Y.
- Hydraulic Jacks.**  
 Dudgeon, Richard, 24 Columbia, N. Y.  
 Watson & Stillman, 24 E. 43d, N. Y.
- Ice-Cream Freezers.**  
 North Bros. Mfg. Co., Phila., Pa.  
 Packer, C. W., Philadelphia, Pa.  
 White Mountain Freezer Co., Nashua, N. H.
- Ice Shavers.**  
 Enterprise Mfg. Co., Philadelphia, Pa.
- Injectors.**  
 Eynon-Evans Mfg. Co., Philadelphia, Pa.  
 Jenkins Bros., New York  
 Sherwood Mfg. Co., Buffalo, N. Y.
- Insurance, Boiler.**  
 Hartford Steam Boiler Inspection & Insurance Co., Hartford Conn.
- Iron and Steel, Swedish.**  
 Lundberg, Gustaf, Boston, Mass.  
 Milne, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**  
 Corning, Edw. & Co., 29 B'way, N. Y.  
 Cotton, Bradley & Co., Philadelphia.  
 Etting, Edw. J., Philadelphia.  
 Hogan, John & Co., Philadelphia, Pa.  
 Hoffman, J. W. & Co., Philadelphia.  
 Lewis, Henry & Co., Philadelphia.  
 Keeley, Jerome & Co., Philadelphia.  
 Lea, J. Tatnell & Co., Philadelphia.  
 Mohr, J. J., 480 Walnut, Philadelphia.  
 Pilling & Crane, Philadelphia, Pa.  
 Sibell, Geo. H. & Co., Chicago, Ill.  
 Wister, L. & R. & Co., Phila., Pa.
- Iron Ore.**  
 Taylor & Co., 45 Wall, N. Y.  
 Pulman, J., Wesley, Phila., Pa.  
 Samuel, Frank, Philadelphia, Pa.
- Iron, Merchants.**  
 Barnes, C. K. & Co., Philadelphia, Pa.  
 Borden & Lovell, 70 West, N. Y.  
 Bussentius & Cunliffe, Philadelphia.  
 Corning Edw. & Co., 29 B'way, N. Y.  
 Cox, Justice, Jr., Philadelphia.  
 Cotton, Bradley & Co., Philadelphia.  
 Hoffman, J. W. & Co., Philadelphia.  
 Leonard, J., 446 West St., N. Y.  
 Navlor & Co., 45 Wall St., N. Y.  
 Nicolls, Wheeler & Co., Philadelphia.  
 Ogden & Wallace, 85 Elm St., N. Y.  
 Pierson & Co., 29 Broadway, N. Y.  
 Thomson, W. H. & Co., Phila., Pa.  
 Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.  
 Whitney, A. R. & Co., 17 B'way, N. Y.  
 Wilson, A. H. & Co., Philadelphia.
- Iron, Importers.**  
 Abbott Wheelock & Co., N. Y. and Boston  
 Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet. Manufacturers of.**  
 Cambridge Iron & Steel Co., Cambridge Ohio  
 W. Dewees Wood Co., Lim., McKeesport, Pa.
- Ironwork, Ornamental.**  
 Barnum, E. T., Detroit, Mich.  
 Champion Iron Co., Kenton, O.  
 Lindlow-Saylor Wire Co., St. Louis, Mo.  
 Mast, Foss & Co., Springfield, O.  
 The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**  
 Wollensak, J. F., Chicago, Ill.
- Ladders, Rolling.**  
 Coburn Trolley & Track Mfg. Co., Holyoke, Mass.
- Ladies.**  
 Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**  
 Glazier Stove Co., Chelsea, Mich.
- Lanterns.**  
 Ohio Lantern Co., Tiffin, Ohio.  
 Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**  
 Draper Machine Tool Co., Worcester, Mass.  
 Johnson, Israel H., Jr., & Co., Philadelphia, Pa.  
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Wire.**  
 Clinton Wire Cloth Co., Clinton, Mass.  
 J. Wire Cloth Co., Trenton, N. J.  
 Wright & Clinton Wire Cloth Co., Worcester, Mass.
- Lawn Mowers.**  
 Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.  
 Champlin Mfg. Co., Richmond, Ind.  
 Coldwell Lawn Mower Co., Newburgh, N. Y.  
 Dille & McGuire Mfg. Co., Richmond, Ind.  
 F. & N. Mfg. Co., Richmond, Ind.  
 Henley, M. C., Richmond, Ind.  
 Mast, Foss & Co., Springfield, O.  
 Stearns, S. C. & Co., Syracuse, N. Y.  
 Supplee Hdw. Co., Phila., Pa.
- Lawn Rakes.**  
 Gibbs Mfg. Co., Canton, Ohio.  
 Konler, F. E. & Co., Canton, O.  
 Schaeffer & Co., Dayton, Ohio.  
 Syracuse Specialty Mfg. Co., Syracuse, N. Y.
- Lawn Sprinklers.**  
 Ette & Henger Mfg. Co., St. Louis.  
 McGowan, John H. Co., Cincinnati O.
- Lemon Squeezers.**  
 Ripley Mfg. Co., Unionville, Conn.
- Letters and Figures, Metallic.**  
 White, A. A. & Co., Providence, R. I.
- Letters, Paper.**  
 Tablet & Ticket Co., Chicago, Ill.
- Levels.**  
 Davis & Cook, Watertown, N. Y.  
 Richardson, C. F., & Son Athol, Mass.
- Locks & Knobs, Manufacturers of.**  
 Deltz, A. E., 97 Chambers, N. Y.  
 Keyless Lock Co., Chicago, Ill.  
 Reading Hdw. Co., Reading, Pa.  
 Smith & Egge Mfg. Co., Bridgeport, Conn.  
 Yale & Towne Mfg. Co., Stamford, Conn.

See Alphabetical Index. Pages 101 &amp; 102.

**Machinery.**

**Am. Tool Works, Cleveland, Ohio.**  
 Barnes, W. F. & John, Rockford, Ill.  
 Sement, Miles & Co., Philadelphia, Pa.  
 Sigelov, C. E., 45 Dey, N. Y.  
 Signal & Keeler Mfg. Co., St. Louis.  
 Birmingham Iron Foundry, Birmingham, Conn.  
 Bliss, E. W. Co., Brooklyn, N. Y.  
 Bogert, Jno. L., Flushing, N. Y.  
 Briggs, Marvin, 13 Broadway, N. Y.  
 Carlin's Sons, Thos., Allegheny, Pa.  
 Cincinnati Milling Mch. Co., Cincinnati, Ohio.  
 Clapp, Geo. M., agt., 74 Cortlandt, N. Y.  
 Coulter & McKenzie Mch. Co., Bridgeport, Conn.  
 Detroit & Harvey Mch. Co., Baltimore, Md.  
 Fitchburg Mch. Works, Fitchburg, Mass.  
 Garvin Mch. Co., Laitant & Canal St. Gould & Eberhardt, Newark, N. J.  
 Hamilton Mch. Tool Co., Hamilton, O.  
 Harrington, E. Son & Co., Phila. Pa.  
 Henderer, A. L., Wilmington, Del.  
 Hendey Machine Co., Torrington, Ct.  
 Kenley Mch. Tool Wks., Richmond, Ind.  
 Hill, Clarke & Co., Boston, Mass.  
 Johnson, Israel H., Jr., & Co., Phila.  
 Jones & Lamson Mch. Co., Springfield, Vt.  
 Lodge & Shipley Mch. Tool Works, Cincinnati, O.  
 Lovegrove & Co., Philadelphia, Pa.  
 McCabe, J. J., 68 Cortlandt, N. Y.  
 Machinists Supply Co., Rochester, N. Y.  
 Manville, E. J. Mch. Co., Waterbury, Conn.  
 National Machinery Co., Lima, Ohio.  
 Newark Mch. Tool Works, Newark, N. J.  
 New Haven Mfg. Co., New Haven, Conn.  
 New York Mch. Depot, N. Y.  
 Niles Tool Wks., 133 Liberty St., N. Y.  
 Pittsburgh Mfg. Co., Pittsburgh, Pa.  
 Place, Geo., 120 Broadway, N. Y.  
 Poole, Robt. & Son Co., Baltimore, Md.  
 Powell Planer Co., Worcester, Mass.  
 Pratt & Whitney Co., Hartford, Conn.  
 Prentiss Tool & Supply Co., N. Y.  
 Scranton Supply & Mchry. Co., Scranton, Pa.  
 Sellers, Wm. & Co., Phila.  
 Seyfert's Sons L. F., Philadelphia, Pa.  
 Stepike, J. & Co., Cincinnati, O.  
 Stow Flexible Shaft Co., Ltd., Phila.  
 Toomer, Frank, Philadelphia, Pa.  
 Wetherill, Robert & Co., Chester, Pa.  
 Wilson, W. A., Rochester, N. Y.

**Machinery for Hardware Manufacture.**

Adt, Jno. & Son, New Haven, Conn.

**Machine Knives.**

Loring Coes & Co., Worcester, Mass.

**Machine Screws.**

New Britain Hdw. Mfg. Co., New Britain, Conn.

**Machine Tools.—See Machinery.****Machine Work.**

Papping, J., 58th St., & 11th Ave., N. Y. City.

**Machinists' Scales.**

Coffin & Leighton, Syracuse, N. Y.  
 Starratt, L. S., Athol, Mass.  
 Valentine Tool Co., Hartford, Conn.

**Machinists' Tools and Supplies.**

King, J. M. & Co., Waterford, N. Y.  
 Sellers, Wm. & Co., Inc., Phila.

**Mallets.**

N. Y. Mallet & Handle Works, N. Y.

**Manufacturing Sites.**

Chicago, Milwaukee & St. Paul R. R., Chicago, Ill.

**Measuring Tapes.**

Keuffel & Esser Co., 127 Fulton St., N. Y.  
 Lufkin Rule Co., Saginaw, Mich.

**Meat Cutters and Stuffers.**

Enterprise Mfg. Co., Philadelphia, Pa.

**Mechanical Instruction.**

Correspondence School of Mechanics, Scranton, Pa.

**Metals.**

Fearing, Wm. S., 100 Chambers, N. Y.  
 Hendricks Bros., 49 Cliff, N. Y.  
 Naylor & Co., 45 Wall, N. Y.

**Metal Brokers.**

American Metal Co., N. Y.

**Metalburgists.**

Britton J. Blodgett, Phila.

**Milling Machines.**

Cin. Milling Mch. Co., Cincinnati, Ohio.

**Mining Knives.**

Palmer Hdw. Mfg. Co., Troy, N. Y.

**Miner Lamps.**

Darby, Edw. & Sons, Phila. Pa.  
 Leonard, B. E., Scranton, Pa.

**Mining Screens.**

Harrington & King Perforating Co., Chicago, Ill.

**Mirrors.**

Rice, C. F., Chicago, Ill.

**Molding Sand.**

Obermayer, S. Co., Cincinnati, O.

**Motors, Water and Electric.**

O. & C. Electric Co., 402 and 404 Greenwich St., N. Y.  
 Dallett, Thos. H. & Co., Phila., Pa.

**Nail Machinery.**

Pittsburgh Mfg. Co., Pittsburgh, Pa.

**Nails (Cut) and Spikes.**

Borden & Lovell, 70 West, N. Y.  
 Cumberland Nail & Iron Co., Phila.  
 Oxford Iron Co., 81 Washington, Pottstown Iron Co., Pottstown, Pa.  
 Riverside Iron Wks., Wheeling, W. Va.

**Neck Yokes.**

Johnson, S. C., Racine, Wis.

**Nickel Platers' Supplies.**

Colburn Electric Mfg. Co., Fitchburg, Mass.  
 Hanson & Van Winkle Co., Newark, N. J.  
 Zucker & Levett Chemical Company, 10 to 14 Grand St., N. Y.

**Norway Shapes, Rollers of.**

Bowland, William & Harvey, Frankford, Philadelphia

**Novelty Manufacturers.**

Franklin, H. H. Mfg., Syracuse, N. Y.

**Nut Machines.**

Dunham Nut Mch. Co., Unionville, Ct.

**Nuts, Bolts, &c., Makers of.**

American Bolt Co., Lowell, Mass.  
 American Screw Co., Providence, R. I.  
 Blake & Johnson, Waterbury, Conn.  
 Haskell, Wm. H. Co., Pawtucket, R. I.  
 Mt. Carmel Bolt Co., Mt. Carmel, Conn.  
 Port Chester Bolt and Nut Co., Chester, N. Y.  
 Russell, Burdall & Ward, Port Chester, N. Y.  
 Sternberg, J. H. & Son, Reading, Pa.  
 Wilson, J. Fred, Worcester, Mass.  
 Wm. H. Haskell Co., Pawtucket, R. I.

**Oil Cups and Lubricators.**

Sherwood Mfg. Co., Buffalo, N. Y.

**Oilers.**

Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

**Oil Stones.**

Pike Mfg. Co., Pike Station, N. H.

**Oil Stoves.**

Glazier Stove Co., Chelsea, Mich.

**Ores.**

Wister, Francis, Philadelphia, Pa.

**Px Shoes.**

Scranton Forging Co., Scranton, Pa.

**Packing.**

Morrison, Robt., St. Louis, Mo.  
 N. Y. Belting & Packing Co., Ltd., N. Y.

**Padelocks.**

Ames Sword Co., Chicopee, Mass.  
 Brainer, E. T., Lancaster, Pa.  
 Hillebrand & Wolf, Phila., Pa.  
 Miller Lock Co., Philadelphia, Pa.

**Paint.**

Dixon, Jos. Crucible Co., Jersey City, N. J.

**Paint Burners.**

Dangler Stove & Mfg. Co., Cleveland, O.

**Paint Cans.**

Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

**Patent Solicitors.**

Howson & Brown, Phila. & Wash'ton.  
 Jenner, E. W., Washington, D. C.  
 Stocking, E. B., Washington, D. C.

**Perforated Metal.**

Clinton Wire Cloth Co., Clinton, Mass.  
 Harrington & King Perforating Co., Chicago, Ill.  
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.

**Phosphor Bronze.**

Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

**Phosphor Tin.**

Crescent Phosphorized Metal Co., Philadelphia, Pa.  
 Crosby Steam Gage & Valve Co., Boston, Mass.  
 Haik & Naumann, 516 Pearl, N. Y.

**Picks and Mattocks.**

Plumb, Fayette R., Philadelphia, Pa.

**Pig Iron.**

Houston, C. B. & Co., Philadelphia, Pa.  
 Montour Iron & Steel Co., Danville, Pa.  
 Naylor & Co., 45 Wall, N. Y.  
 Pilling & Crane, Philadelphia, Pa.  
 Samuel, Frank, Philadelphia, Pa.

**Pig Iron Storage.**

Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

**Pile Drivers.**

Vulcan Iron Wks., Chicago, Ill.

**Pipe, Bent.**

National Pipe Bending Co., New Haven

**Pipe Cutting and Threading Machines.**

Signal & Keeler Mfg. Co., St. Louis, Mo.  
 Merrill Mfg. Co., Toledo, O.  
 Pancoast Henry B. & Co., Philadelphia.  
 Saunders Sons, D., Yonkers, N. Y.

**Pipe Grips.**

Prentiss Vise Co., 44 Barclay, N. Y.

**Pipes, Fittings, &c., Makers of.**

McNab & Harlin Mfg. Co., N. Y.

**Pipe, Water and Gas, Makers of.**

Cumberland Nail & Iron Co., Phila.  
 Donaldson Iron Co., Emsa, Pa.  
 Riverside Iron Works, Wheeling, W. Va.  
 Wood, R. D. & Co., Philadelphia, Pa.

**Plane Irons, Manufacturers of.**

Buck Bros., Millbury, Mass.

**Planes, Manufacturers of.**

Stanley Rule & Level Co., N. Y.

**Plate, Iron and Steel, Mfrs of.**

Etna-Standard Iron & Steel Co., Bridgeport, O.  
 Lukens Iron & Steel Co., Coatesville, Pa.

**Mahoning Valley Iron Co., Youngstown, Ohio.**

Moorehead-McLean Co., Pittsburgh, Pa.  
 McMillan & Sons, Reading, Pa.  
 Pottstown Iron Co., Pottstown, Pa.  
 Pottsville Iron & Steel Co., Pottsville, Pa.  
 Singer, Nimick & Co., Pittsburgh, Pa.  
 The Mahoning Valley Iron Co., Youngstown, O.  
 Steelman Iron & Steel Co., Thurlow, Pa.  
 Wood Alan Co., Philadelphia.

**Plating, Nickel, Brass and Silver.**

Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.

**Pokers and Lifters.**

Troy Nickel Works, Troy, N. Y.

**Polishing Machines.**

Watson & Stillman, 204 E. 43d, N. Y.

**Polishing Wheel.**

La Massena, C. E. & Co., Newark, N. J.

**Post Hole Diggers.**

Buckeye Mfg. Co., Union City, Ind.

**Post Hole Diggers.**

Water, L. R. & Co., Philadelphia, Pa.

**Post Hole Diggers.**

Barnum, E. T., Detroit, Mich.  
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.  
 N. Y. Wire Cloth Co., Trenton, N. J.  
 "Silver Finish."  
 Tyler Wire Wks. Co., W. S., Cleveland, O.  
 Wright & Colton Wire Cloth Co., Worcester, Mass.

**Power Hack Saws.**

Miller Falls Co., 93 Reade St., N. Y.

**Power Hammers.**

Selden Mch. Co., New Haven, Conn.  
 Olenick & Zuehlhardt, Philadelphia.  
 Jenkins & Lingie, Bellefonte, Pa.  
 Long & Allstatter Co., Hamilton, Ohio.

**Presses, Dies, &c.**

E. W. Bliss Co., Brooklyn, N. Y.  
 Crosby, G. A. & Co., Chicago, Ill.  
 Ferracute Mch. Co., Bridgeton, N. J.  
 Niagara Stamping & Tool Co., Buffalo, N. Y.  
 Stark Mch. & Tool Co., Buffalo, N. Y.  
 Stiles & Parker Press Co., Brooklyn, N. Y.  
 Waterbury Mch. Co., Waterbury, Conn.

**Presses, Power, Makers of.**

Bliss, E. W. Co., Brooklyn, N. Y.  
 Manville, E. J. Mch. Co., Waterbury, Ct.  
 Merriman, A. H., Meriden.  
 Niagara Stamping and Tool Co., Buffalo, N. Y.

**Presses, Power, Makers of.**

Robinson, J. M. & Co., Cincinnati, O.  
 Stark Mch. & Tool Co., Buffalo, N. Y.  
 Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

**Pulleys.**

Keystone Clutch Mch. Wks., Phila., Pa.  
 Lake, J. H. & D. Co., Massillon, Ohio.  
 Reeves Pulley Co., Columbus, Ind.

**Pulley Fixings.**

Foley, J. W. & Co., Cincinnati, O.

**Pulverizing Mill.**

Bradley Fertilizer Co., Boston, Mass.

**Pumping Machinery.**

Coulter & McKenzie Mch. Co., Bridgeport, Conn.  
 Dean Bros. Steam Pump Works, Indianapolis, Ind.  
 Hooker-Clifford Steam Pump Co., Chicago, Ill.  
 Lucas, C. O. & Co., Greenville, Ohio.  
 McGowan, J. H. & Co., Cincinnati, O.  
 Maslin, J. & Son, Jersey City, N. J.  
 Norwalk Iron Wks. Co., So. Norwalk, Conn.  
 Southwick Edy. & Mch. Co., Phila., Pa.  
 Teller Pump Wks., Easthampton, Mass.  
 Worthington, Henry R., 86 & 88 Liberty St., N. Y.

**Pumps, Makers of.**

Bellevue Pump Co., Bellevue, Iowa.  
 Deming Co., Salem, O.  
 Douglas, W. B., Middletown, Conn.  
 Mast, Foss & Co., Springfield, O.  
 Myers, F. E. & Bro., Ashland, O.

**Punches and Shears, Hand and Power.**

E. W. Bliss Co., Brooklyn, N. Y.  
 Cockburn Barrow & Mch. Co., Jersey City, N. J.

**Punches, Makers of.**

Crosby, G. A. & Co., Chicago, Ill.  
 Ferracute Mch. Co., Bridgeton, N. J.  
 Henderer, A. L., Wilmington, Del.  
 Long & Allstatter Co., Hamilton, Ohio.  
 Niagara Stamping and Tool Co., Buffalo, N. Y.

**Punches, Makers of.**

Robinson, J. M. & Co., Cincinnati, O.  
 Stark Mch. & Tool Co., Buffalo, N. Y.  
 Stiles & Parker Press Co., Brooklyn, N. Y.

**Punches, Makers of.**

Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.  
 Watson & Stillman, 204 E. 43d, N. Y.

**Rails, Old and New.**

Perry, W. H. & Co., Providence, R. I.

**Rat and Mouse Traps.**

Burditt & Williams, Boston, Mass.  
 Estey, W. S., 65 Fulton, N. Y.  
 Ripley Mfg. Co., Unionville, Conn.  
 Sun Mfg. Co., Greenfield, O.

**Razors.**

Electric Cutlery Co., 113 Chambers, N. Y.  
 J. R. Torrey Razor Co., Worcester, Mass.

**Reels.**

Hendryx, A. B. Co., New Haven, Conn.

**Refrigerator Door Fasteners.**

Conroy, P. J. & Co., Philadelphia.

**Rivets.**

Blake & Johnson, Waterbury, Conn.  
 Boyce Rivet Co., Muncie, Ind.  
 Burden Iron Co., Troy, N. Y.  
 Cobb & Drew, Plymouth, Mass.  
 Henderson, Jas. S., 165 Greenwich, N. Y.  
 New England Screw Co., Boston, Mass.  
 Plymouth Mills, Plymouth, Mass.  
 Sternberg, J. H. & Son, Reading, Pa.  
 Townsend, W. P. & Co., New Brighton, Pa.

**Riveting Machines.**

Adt, Jno. & Sons, New Haven, Conn.

**Rock Drills.**

Sand Drill Co., 23 Park Place, N. Y.

**Rolling Mill Machinery.**

Birmingham Iron Fdry, Birmingham, Conn.  
 Booth, The Lloyd, Co., Youngstown, O.  
 Leechburg Foundry & Mch. Co., Pittsburgh, Pa.  
 Mahoning Fdry & Mch. Co., Danville, Pa.  
 Morgan Construction Co., Worcester, Mass.

**Rolling Mill Machinery.**

Robinson-Rea Mfg. Co., Pittsburgh, Pa.  
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.  
 Trethewey Mfg. Co., Pittsburgh, Pa.  
 Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

**Roll Lathes.**

Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

**Rolls, Chilled, Sand and Steel.**

Booth, The Lloyd, Co., Youngstown, O.  
 Garrison, A. Fdry. Co., Pittsburgh, Pa.  
 Seaman, Sleeth & Black, Pittsburgh.  
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

**Roofing.**

Berlin Iron Bridge Co., E. Berlin, Conn.  
 Boston Bridge Works, Boston, Mass.  
 Cambridge Roofing Co., Cambridge, O.  
 Johns, H. W. Mfg. Co., 87 Malden Lane

**Rope and Web Goods.**

Covert Mfg. Co., West Troy, N. Y.  
 Covert's Saddlery Wks., Farmer, N. Y.

**Rope Wheels.**

Cresson, Geo. V. Co., Philadelphia, Pa.

**Rubber Goods.**

Candfield, H. O., Bridgeport, Conn.

**Rules, Manufacturers of.**

Keuffel & Esser Co., 127 Fulton St., N. Y.  
 Lufkin Rule Co., Saginaw, Mich.  
 Standard Tool Co., Athol, Mass.  
 Stanley Rule & Level Co., 29 Chambers.

**Sand Paper.**

Baeder, Adamson & Co., Phila., Pa.

**Sash Balances.**

Pulman Sash Balance Co., Rochester, N. Y.  
 Vanderbilt Sash Balance Co., Canandaigua, N. Y.

**Sash Cords and Chains.**

Morton, Thos., 65 Elizabeth, N. Y.  
 Ossawau Mills Co., Norwich, Conn.  
 Samson Cordage Works, Boston, Mass.  
 Smith & Egge, Mfg. Co., Bridgeport, Conn.  
 Cincinnati Corrugating Co., Piqua, O.

**Sash Fasteners.**

Wooster, F. V., Boston, Mass.

**Sash Locks.**

Columbian Sash & Door Dock Co., Wauseon, Ohio.  
 Ives, H. B. & Co., New Haven, Conn.

**Sash Pulleys.**

Empire Portable Forge Co., Lansingburgh, N. Y.  
 Palmer Hardware Mfg. Co., Troy, N. Y.

**Sash Weights.**

- Allentown Rolling Mill.** Allentown, Pa.  
**Lockhart Iron & Steel Co.** Pittsburgh, Pa.  
**Passaic Rolling Mill Co.** Paterson, N.J.  
**Pottsville Iron & Steel Co.** Pottsville, Pa.  
**Roberts, A. & P. & Co.** Phila., Pa.  
**The Phoenix Iron Co.** Phila., Pa.  
**Tudor Iron Works.** St. Louis, Mo.
- Shears and Scissors.**  
**Acme Shear Co.** Bridgeport, Conn.  
**Heinrichs, R. Sons Co.** Newark, N. J.
- Sheet Iron and Steel, Manufacturers of.**  
**Etna-Standard Iron and Steel Co.** Bridgeport, Conn.  
**Cambridge Iron & Steel Co.** Cambridge, Ohio.  
**Chees Bros.** Pittsburgh, Pa.  
**Mahoning Valley Iron Co.** Livingston, Ohio.  
**Moorehead-McCleane Co.** Pittsburgh, Pa.  
**Pierson & Co.** 29 Broadway, N. Y.  
**Singer, Nimick & Co., Ltd.** Pittsburgh, Pa.  
**The Mahoning Valley Iron Co.** Youngstown, O.  
**Alan Wood Co.** Philadelphia.  
**W. Dewees Wood Co.** McKeesport, Pa.
- Sheet Metal Work.**  
**Clark & Cowles.** Plainville, Conn.
- Sheet Zinc.**  
**Mathlessen & Hegeler Zinc Co.** La Salle, Ill.
- Shelf Brackets.**  
**Koch, A. B. & Co.** Peoria, Ill.
- Sinks.**  
**Douglas, W. & B.** Middletown, Conn.
- Skates, Ice.**  
**Dame, Stoddard & Kendall.** Boston, Mass.  
**Sickels, Sweet & Lyon.** 35 Barclay St., N. Y.  
**Union Hardware Co.** Torrington, Conn.  
**Winslow, Sam'l, Skate Mfg. Co.** Worcester, Mass.
- Skates, Roller.**  
**Henley, M. C.** Richmond, Ind.  
**Winslow, Sam'l, Skate Mfg. Co.** Worcester, Mass.
- Smelting Works.**  
**Reeves, Paul S.** 760 S. Broad, Phila.
- Soldering Coppers.**  
**Clendenin Bros.** Baltimore, Md.
- Speaking Tubes.**  
**Ostrander, W. R. & Co.** 204 Fulton St., N. Y.  
**Wollensak, J. F.** Chicago, Ill.
- Specialties, Pat. Articles.**  
**Konigslow, O.** Cleveland, O.
- Speed Indicators.**  
**Church & Slight.** 109 Fulton St., N. Y.
- Spelter.**  
**Mathlessen & Hegeler Zinc Co.** La Salle, Ill.
- Spoons and Forks.**  
**Boardman, L. & Son.** New Haddam, Conn.  
**Holmes & Edwards Silver Co.** Bridgeport, Conn.  
**Rogers, The Wm. Mfg. Co.** Hartford, Conn.  
**Rogers & Hamilton Co.** Waterbury, Conn.
- Sporting Goods.**  
**Hartley & Graham.** 313-315 B'way, N. Y.
- Spring Hinges.**  
**Dunbar Bros.** Bristol, Conn.  
**Miller & Van Winkle.** Brooklyn, N. Y.  
**Morgan Spring Co.** Worcester, Mass.  
**Nourse, Fred. Co.** 315 to 319 E. 22d St., N. Y.  
**Roland, Wm. & Harvey.** Phila., Pa.  
**Sabin Machine Co.** Montpelier, Vt.  
**Tuck Mfg. Co.** Brockton, Mass.  
**Washburn & Moen Mfg. Co.** Worcester, Mass.  
**Wolff, R. H. & Co., Ltd.** 118th St. and Harlem River, N. Y.
- Stamped Ware.**  
**Am. Stamping Co.** 104 & 106 John St., New York.
- Stamping Works.**  
**Cleveland Stamping & Tool Co.** Cleveland, O.
- Staples.**  
**Cobb & Drew.** Plymouth, Mass.  
**Titchener E. H. & Co.** Binghamton, N. Y.
- Steam Gauges.**  
**Ashcroft Mfg. Co.** 111 Liberty St., N. Y.  
**Bristols Mfg. Co.** Waterbury, Conn.
- Steam Hammers, &c., Makers of.**  
**Dienelt & Elsenhardt.** Philadelphia.  
**Dudgeon, Richard.** 24 Columbia Street, N. Y.  
**Trethewey Mfg. Co.** Pittsburgh, Pa.
- Steam Heating.**  
**Webster Warren & Co.** Camden, N. J.
- Steam Separators.**  
**Goubert Mfg. Co.** 32 Cortland St. N. Y.  
**Harrison Safety Boiler Wks.** Phila., Pa.
- Steel, Cold Rolled Strip.**  
**Wilmot & Hobbs Mfg. Co.** Bridgeport, Conn.
- Steel Figures and Alphabets.**  
**Krogerud, W.** 61 Fulton, N. Y.  
**Wolff, C. H.** 177 William St., N. Y.
- Steel Importers.**  
**Abbott, Wheelock & Co.** N. Y. and Boston.  
**Eaton, Francis, Seaman & Co.** 9 John St., N. Y.  
**Jessop, Wm. & Sons.** Sheffield, England, or 91 John, N. Y.  
**Milne, A. & Co.** 1 Broadway, N. Y.  
**Newton & Shipman.** 83 John, N. Y.  
**Westhrell Bros.** 88 Liberty St., N. Y.  
**Whitney, A. R. & Co.** Brooklyn, N. Y.  
**Wolff, R. H. & Co., Ltd.** 118th Street and Harlem River, N. Y.
- Steel (Mushet's Special).**  
**Jones, B. M. & Co.** Boston.
- Steel Manufacturers.**  
**Etna-Standard Iron & Steel Co.** Bridgeport, Conn.  
**Bethlehem Iron Co.** S. Bethlehem, Pa.  
**Baker, Herman & Co.** 103 Duane St. Carbon Steel Co., Pittsburgh, Pa.  
**Chester Steel Castings Co.** Phila., Pa.  
**Crescent Steel Works.** Brooklyn, N. Y.  
**Crescent Steel Co.** Pittsburgh, Pa.  
**Elken & Co.** Hagen, Germany.  
**Frankford Steel Co.** Philadelphia.  
**Gautier Steel Department of Cambria Iron Co.** Johnstown, Pa.  
**Hobson, Francis, Seaman & Co.** 9 John St., N. Y.  
**Jessop, Wm. & Sons.** Sheffield, England, or 91 John, N. Y.  
**Kayser, Ellison & Co.** Sheffield, Eng.  
**La Belle Steel Co.** Pittsburgh, Pa.  
**Lukens Iron & Steel Co.** Coatesville, Pa.  
**Moorehead-McCleane Co.** Pittsburgh, Pa.  
**Moss, F. W.** 83 John, N. Y.  
**Vaylor & Co.** 45 Wall, N. Y.  
**Pottsville Iron and Steel Co.** Pottsville, Pa.  
**Rowland, Wm. & Harvey.** Frankford, Philadelphia.  
**Singer, Nimick & Co.** Pittsburgh.  
**Stanley Works.** New Britain, Conn.  
**Steel & Iron Improvement Co.** Pittsburgh, Pa.  
**Taylor Iron & Steel Co.** High Bridge, N. J.  
**Wordlaw, S. & C.** Sheffield, Eng.  
**Wetherell Bros.** 93 Liberty, N. Y.  
**Wilmot & Hobbs Mfg. Co.** Bridgeport, Conn.
- Steel, Manufacturers' Agents.**  
**Barnes, C. K. & Co.** Philadelphia, Pa.  
**Corning, Edw. & Co.** 29 B'way, N. Y.  
**Frasse Co.** 19 Warren St., New York.  
**Lindsay, Jas. G. & Co.** Phila., Pa.  
**Pierson & Co.** 29 Broadway, N. Y.
- Steel Rails, Manufacturers of.**  
**Bethlehem Iron Co.** S. Bethlehem, Pa.  
**Cambria Iron Co.** Johnstown, Pa.  
**Montour Iron & Steel Co.** Danville, Pa.  
**Riverside Iron Wks.** Wheeling, W. Va.
- Steel, Tool.**  
**Frankford Steel Co.** Philadelphia, Pa.  
**Jessop, Wm. & Sons.** Sheffield, England, 91 John, N. Y.  
**Jones, B. M. & Co.** Boston, Mass.  
**La Belle Steel Co.** Pittsburgh, Pa.
- Step Ladders.**  
**Bicycle Step Ladder Co.** Chicago, Ill.  
**Croissant, M.** Albany, N. Y.
- Stocks and Dies.**  
**Armstrong Mfg. Co.** Bridgeport, Conn.  
**Billings & Spencer Co.** Hartford, Conn.  
**Butterfield & Co.** Derby Line, Vt.  
**Hart Mfg. Co.** Cleveland, O.  
**Saunders Sons, D.** Yonkers, N. Y.  
**Wells Bros. & Co.** Greenfield, Mass.  
**Wiley & Russell Mfg. Co.** Greenfield, Mass.
- Stove Linings.**  
**Ostrander Fire Brick Co.** Troy, N. Y.
- Stove Pipe Thimbles.**  
**Cheney, S. & Son.** Manlius, N. Y.
- Stove Trimmings.**  
**Troy Nickel Works.** Troy, N. Y.
- Stove Trucks.**  
**Gwinner Mfg. Co.** Hamilton, O.
- Street Lamps.**  
**Steam Gauge & Lantern Co.** Syracuse, N. Y.
- Strops.**  
**Electric Cutlery Co.** 113 Chambers, N. Y.  
**J. R. Torrey & Co.** Worcester, Mass.
- Structural Iron Work.**  
**Belin Iron Bridge Co.** East Berlin, Conn.  
**Boston Bridge Wks.** Boston, Mass.  
**Lindsay, Jas. G. & Co.** Phila., Pa.  
**Wrought Iron Bridge Co.** Canton, O.
- Sulphuric Acid.**  
**Mathlessen & Hegeler Zinc Co.** La Salle, Ill.
- Tacks, Brads, Staples, &c.**  
**Atlas Tack Corporation.** Boston, Mass.  
**Clendenin Bros.** Baltimore, Md.  
**Cobb & Drew.** Plymouth, Mass.  
**Grand Crossing Tack Co.** Grand Crossing, Ill.  
**Nat. Screw & Tack Co.** Cleveland, O.  
**Phillips, E. & Sons.** South Hanover, Plymouth Mills, Plymouth, Mass.  
**Trufant, W. E.** Whitman, Mass.
- Tank Heaters.**  
**Hunt, Helm & Ferris.** Harvard, Ill.
- Taps and Dies.**  
**Futterfield & Co.** Derby Line, Vt.  
**Carpenter, J. M.** Tap & Die Co., Pawtucket, R. I.  
**Manning, Maxwell & Moore.** 111 Liberty St., N. Y.  
**Wells Bros. & Co.** Greenfield, Mass.  
**Wiley & Russell Mfg. Co.** Greenfield, Mass.
- Testing Laboratories.**  
**Riehle Bros. Testing Mch. Co.** Philadelphia.
- Testing Machines.**  
**Riehle Bros. Testing Mch. Co.** Phila.
- Theoretical Hardware.**  
**Wollensak, J. F.** Chicago, Ill.
- Thill Springs.**  
**Frost Thill Spring Co.** Boston, Mass.  
**Sabin Machine Co.** Montpelier, Vt.
- Time Record.**  
**Scattergood, H. W.** Phila., Pa.
- Tinners' Hardware.**  
**Berger Bros.** Philadelphia, Pa.
- Tinning Process.**  
**Sands, Thomas.** Nashua, N. H.
- Tin Plate Machinery.**  
**Lloyd Booth Co.** Youngtown, Ohio.
- Tinware.**  
**Am. Stamping Co.** 104 & 106 John St., Mass.
- Tire Upsetters.**  
**Butts & Ordway.** Boston, Mass.
- Toe Calks, Steel.**  
**Burke, P. F.** Boston, Mass.
- Tool Chests.**  
**Am. Tool Co.** 200 W. Houston St., N. Y.
- Tools.**  
**Brown, R. H. & Co.** New Haven, Conn.  
**Frasse Co.** 19 Warren St., New York.  
**Mayhew, H. H. Co.** Shelburne Falls, Mass.  
**Millers Falls Co.** 93 Reade, N. Y.  
**Richardson, C. F. & Son.** Athol, Mass.  
**Standard Tool Co.** Athol, Mass.  
**Stanley Rule & Level Co.** 29 Chambers, Starrett, L. S. Athol, Mass.  
**Tower & Lyon.** 95 Chambers St., N. Y.
- Tools, Blacksmith and Wheelwrights.**  
**Buffalo Forge Co.** Buffalo, N. Y.  
**Butts & Ordway.** Boston, Mass.  
**Champion Blower & Forge Co.** Lancaster, Pa.  
**Plumb, Fayette R.** Philadelphia, Pa.  
**Wiley & Russell Mfg. Co.** Greenfield, Mass.
- Tools, Steam and Gas Fitters'.**  
**Saunders Sons, D.** Yonkers, N. Y.
- Torches, Oil and Gasolene.**  
**Dangler Stove & Mfg. Co.** Cleveland, O.  
**Schneider & Trenkamp Co.** Cleveland, Ohio.
- Transom Lifters.**  
**Wollensak, J. F.** Chicago, Ill.
- Tree Protectors.**  
**McCallip Fence & Wire Wks.** Columbus, Ohio.
- Trucks, Manufacturers of.**  
**Berger Bros.** Philadelphia, Pa.  
**Boston & Lockport Block Co.** Boston, Mass., and Lockport, N. Y.  
**Clark, G. P.** Windsor Locks, Conn.  
**Lansing Wheelbarrow Co.** Lansing, Mich.
- Tubes, Seamless Drawn Copper.**  
**Ansonia Brass & Copper Co.** 19 and 21 Cliff, N. Y.  
**Randolph & Clowes.** Waterbury, Conn.
- Tubes, Steel.**  
**Leah's John S. Son & Co.** 4 Fletcher St., New York.  
**Shelby Steel Tube Co.** Shelby, O.
- Tumbling Barrels.**  
**Henderson Bros.** Waterbury, Conn.
- Turnbuckles.**  
**Cleveland City Forge & Iron Co.** Cleveland, O.  
**Merrill Bros.** Brooklyn, E. D.
- Twist Drills, Makers of.**  
**Cleveland Twist Drill Co.** Cleveland, Mass.  
**Morse Twist Drill & Machine Co.** New Bedford, Mass.  
**New Process Twist Drill Co.** Taunton, Mass.  
**Standard Tool Co.** Cleveland.
- Valves, Gas, Water and Steam.**  
**Best, Fox & Co.** Pittsburgh, Pa.  
**Chapman Valve Mfg. Co.** Boston.  
**Eynon-Evans Mfg. Co.** Philadelphia, Pa.  
**Jenkins Bros.** 71 John, N. Y.  
**McNab & Harlin Mfg. Co.** 66 John, N. Y.  
**Masson Regulator Co.** Boston, Mass.
- Ventilating Fans.**  
**Huyett & Smith Mfg. Co.** Detroit, Mich.
- Ventilator Appliances.**  
**Howard & Morse.** 45 Fulton, N. Y.
- Vise Jaws.**  
**Newark Mch. Tool Co.** Newark, N. J.
- Vises.**  
**Capital Mch. Tool Co.** Auburn, N. Y.  
**Hollands Mfg. Co.** Erie, Pa.  
**Howard Iron Works.** Buffalo, N. Y.  
**Millers Falls Co.** 88 Reade St., N. Y.  
**Prentiss Vice Co.** 44 Barclay, N. Y.  
**Tower & Lyon.** 95 Chambers St., N. Y.  
**Van Wagoner & Williams Co.** 14 Warren St., N. Y.
- Wagon Jacks.**  
**Boston & Lockport Block Co.** Boston, Mass., and Lockport, N. Y.  
**Covert Mfg. Co.** West Troy, N. Y.  
**Covert's Saddlery Works.** Farmer, N. Y.
- Washers.**  
**Haskell, Wm. H. Co.** Pruckett, R. I.  
**Milton Mfg. Co.** Milton, Pa.  
**Sternbergh, J. H. & Son.** Reading, Pa.
- Washing Machines.**  
**Neff, W. H.** Cowan, Ind.
- Water Meters.**  
**Worthington, Henry R.** 86 & 88 Liberty St., N. Y.
- Water Wheels.**  
**Poole, Robt. & Son Co.** Baltimore, Md.
- Wheelbarrows.**  
**Akron Tool Co.** Akron, O.  
**Amer. Steel Scraper Co.** Sidney, Ohio.
- Cockburn Barrow & Mch. Co.** Jersey City, N. J.  
**Kilbourne & Jacobs Mfg. Co.** Columbus, Ohio.  
**Lansing Wheelbarrow Co.** Lansing, Mich.  
**Sidney Steel Scraper Co.** Sidney, O.  
**Sweet Mfg. Co.** Minneapolis, Minn.  
**Toledo Wheelbarrow Works.** Toledo, Ohio.
- Whips.**  
**American Whip Co.** Westfield, Mass.
- Window Cords, Makers of.**  
**Samson Cordage Works.** Boston, Mass.
- Wire, Manufacturers of.**  
**Consolidated Steel & Wire Co.** St. Louis, Mo.  
**Gautier Steel Department of Cambria Iron Co.** Johnstown, Pa.  
**Miller & Van Winkle.** Brooklyn, N. Y.  
**New Castle Wire Nail Co.** New Castle, Pa.  
**New Haven Wire Mfg. Co.** New Haven, Conn.  
**Prentiss, Geo. W. & Co.** Holyoke, Mass.  
**Salem Wire Nail Co.** Salem, O.  
**Trenton Iron Co.** Trenton, N. J.  
**Washburn & Moen Mfg. Co.** Worcester.  
**Wetherell Bros.** 93 Liberty St., F. Y.  
**Wolff, R. H. & Co., Ltd.** 118th St. and Harlem River, N. Y.  
**Wright & Colton Wire Cloth Co.** Worcester, Mass.
- Wire Cloth.**  
**Barnum, E. T.** Detroit, Mich.  
**Clinton Wire Cloth Co.** Clinton, Mass.  
**Darby, Edward & Sons.** Philadelphia.  
**Estey, W. S.** 66 Fulton, N. Y.  
**Gilbert & Bennett Mfg. Co.** 42 Cliff.  
**Howard & Morse.** 45 Fulton, N. Y.  
**N. J. Wire Cloth Co.** Trenton, N. J.  
**Reliance Wire & Iron Wks.** Milwaukee, Wis.  
**Scheeler & Sons.** Buffalo, N. Y.  
**Wickwire Bros.** Cortland, N. Y.  
**Wright & Colton Wire Cloth Co.** Worcester, Mass.  
**W. S. Tyler Wire Works Co.** Cleveland.
- Wire Cutters.**  
**Cronk Hanger Co.** Elmira, N. Y.  
**King, J. M. & Co.** Watertown, N. Y.
- Wire Dies.**  
**McFarland, Wm.** Trenton, N. J.  
**Newton & Shipman.** 83 John, N. Y.
- Wire Door Mats.**  
**Harman Mfg. Co.** Elwood City, Pa.  
**Korrock, Joshua.** 45 Cliff St., N. Y.
- Wire Fences.—See Fencing, Iron and Wire.**
- Wire Goods, Manufacturers of.**  
**Darby, Edward & Sons.** Phila.  
**Gilbert & Bennett Mfg. Co.** 42 Cliff St., N. Y.  
**Lunow, Saylor Wire Co.** St. Louis.  
**Ossawan Mills Co.** Norwich, Conn.  
**Scheeler & Sons.** Buffalo, N. Y.  
**Wickwire Bros.** Cortland, N. Y.  
**Williamson, C. T.** Wire Novelty Co., Newark, N. J.
- Wire Machinery.**  
**Am. Tool Wks.** Cleveland, O.  
**Manville, E. J. Mch. Co.** Waterbury, Ct.  
**Morgan Construction Co.** Worcester, Mass.  
**Waterbury Mch. Co.** Waterbury, Conn.
- Wire Straightening and Cutting Machinery.**  
**Adt, John & Son.** New Haven, Conn.
- Wire Nails.**  
**Consolidated Steel & Wire Co.** St. Louis, Mo.  
**Indiana Wire Fence Co.** Crawfordsville, Ind.  
**Kilmer Mfg. Co.** Newburg, N. Y.  
**New Castle Wire Nail Co.** New Castle, Pa.  
**Phillips, E. & Sons.** South Hanover, Mass.  
**Phillips, Townsend & Co.** Phila., Pa.  
**Plymouth Mills.** Plymouth, Mass.  
**Salem Wire Nail Co.** Salem, O.  
**Whitney, A. K. & Co.** New York City.
- Wire Rods, Steel.**  
**Consolidated Steel & Wire Co.** St. Louis, Mo.  
**New Castle Wire Nail Co.** New Castle, Pa.  
**Washburn & Moen Mfg. Co.** Worcester, Mass.  
**Whitney, A. R. & Co.** 17 B'way, N. Y.  
**Wolff, R. H. & Co., Ltd.** 118th Street and Harlem River, N. Y.
- Wire Rope, Iron and Steel Makers.**  
**Broderick & Bascom Rope Co.** St. Louis, Mo.  
**California Wire Works.** San Francisco.  
**Hazard Mfg. Co.** Wilkesbarre, Pa.  
**A. Leschen & Sons.** Rope Co., St. Louis.  
**Trenton Iron Co.** Trenton, N. J.  
**Washburn & Moen Mfg. Co.** Worcester, Mass.  
**Williamsport Wire Rope Co.** Williamsport, Pa.
- Wood-Working Machinery.**  
**Seneca Falls Mfg. Co.** Seneca Falls, N. Y.
- Wrenches, Manufacturers of.**  
**Bemis & Call Hardware & Tool Co.** Springfield, Mass.  
**Billings, Spencer & Co.** Hartford, Conn.  
**Capitol Mfg. Co.** Chicago, Ill.  
**Coes Wrench Co.** Worcester, Mass.  
**Gendron Iron Wheel Co.** Toledo, O.  
**Keystone Mfg. Co.** Buffalo, N. Y.  
**Tower & Lyon.** 95 Chambers St., N. Y.  
**Turnout & Co.** Roxbury, Mass.  
**Williams, J. H.** Brooklyn, N. Y.
- Wringers.**  
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Bass Foundry & Machine Works.....	3	Chrome Steel Works.....	24	Emory, P. P. Mfg. Co.....	11	Hoffman, J. W. & Co.....	17
Belden Machine Co.....	41	Church, Isaac.....	96	Empire Portable Forge Co.....	84	Hogan, John L. & Co.....	17
Bell, Geo. E.....	52	Church & Sleight.....	33	Enterprise Mfg. Co. of Pa.....	81	Hollands Mfg. Co.....	68
Bellevue Pump Co.....	65	Cincinnati Mfg. Co.....	9	Erie Engine Works.....	34	Holmes & Edwards Silver Co.....	73
Bement, Miles & Co.....	43	Cincinnati Milling Mch. Co.....	52	Estey, W. S.....	12	Holt, Hiram & Co.....	95
Bemis & Call Hardware & Tool Co.....	90	Claden Mfg. Co.....	38	Ette & Henger Mfg. Co.....	95	Hooker-Colville Steam Pump Co.....	54
Berger Bros.....	65	Clapp, Geo. M.....	55	Etting, Edw. J.....	17 & 25	Horrocks, Joshua.....	54
Berlin Iron Bridge Co.....	10	Clark, H. P.....	92	Eureka Cast Steel Co.....	104	Hotchkiss, E. S.....	77
Best, Fox & Co.....	3	Clark & Cowles.....	6	Evans-Friction Cone Co.....	3	Houston, C. B. & Co.....	17
Bethlehem Iron Co.....	21	Clark Mfg. Co.....	84	Eynon-Evans Mfg. Co.....	32	Howard Iron Works.....	90
Bevin Bros. Mfg. Co.....	64	Clauss Shear Co.....	59	F. & N. Mfg. Co.....	94	Howard & Morse.....	7
Bickford Drill & Tool Co.....	48	Clendenin Bros.....	12	Fairmount Machine Co.....	49	Howson & Howson.....	6
Bicycle Step Ladder Co.....	79	Cleveland Block Co.....	85	Fearing, Wm. S.....	2	Hulbert Bros. & Co.....	103
Bigelow, C. R.....	55	Cleveland City Forge & Iron Co.....	1	Ferdinand, L. W. & Co.....	15	Hunt, Helm & Ferris.....	34
Biggall & Keeler Mfg. Co.....	45	Cleveland Stamping & Tool Co.....	78	Ferracute Mch. Co.....	52	Hunt, Robert W. & Co.....	57
Billings & Spencer Co.....	90	Cleveland Stone Co.....	51	Field, Alfred & Co.....	70	Huyett & Smith Mfg. Co.....	40
Bingham, W. Co.....	72	Cleveland Twist Drill Co.....	47	Fitch, W. & E. T.....	107	Ideal Mfg. Co.....	75
Birmingham Iron Foundry.....	23	Clinton Wire Cloth Co.....	8	Fitchburg Machine Works.....	43	Illinois Pure Aluminum Co.....	79
Bissell, E. Son & Co.....	57	Cobb & Drew.....	12	Fitzsimons & Co.....	17	Indiana Wire Fence Co.....	4
Blake & Johnson.....	12	Coburn Trolley Track Mfg. Co.....	82	Flag, Stanley G. & Co.....	104	Ives, H. B. & Co.....	90
Bliss Co., E. W.....	39	Cockburn Barrow & Machine Co.....	93	Foley, J. W. & Co.....	39	Jacobus, W. H.....	96
Boardman, L. & Son.....	75	Coes, Loring & Co.....	91	Forehand Arms Co.....	74	Jacksell Mfg. Co.....	42
Bogert, John L.....	51	Coes Wrench Co.....	91	Fram, E. T.....	2 & 83	Jeffrey Mfg. Co.....	37
Boker, Hermann & Co.....	18	Coffin & Leighton.....	42	Frankford Steel Co.....	19	Jenkins Bros.....	1
Boone, W. C. Mfg. Co.....	25	Colburn, A. M.....	46	Franklin, H. H. Mfg. Co.....	56	Jenkins & Lingle.....	41
Booth, The Lloyd Co.....	28	Colburn Electric Mfg. Co.....	30	Frasse Co.....	24	Jenner, H. W. T.....	6
Borden & Lovell.....	7	Colby Wringer Co.....	83	Frost Thill Spring Co.....	85	Jessop, Wm. & Sons.....	18
Borgner, Cyrus.....	28	Coldwell Lawn Mower Co.....	94	Fulton Iron & Engine Works.....	48	Jones, H. W. Mfg. Co.....	15
Boston Bridge Works.....	15	Colliau, Victor.....	27	Fulton Steam Boiler Wks & Foundry	52	Johnson, I. G. & Co.....	104
Boston Gear Works.....	34	Columbian Sash & Door Lock Co.....	84	Gardner, Jas. & Son.....	25	Johnson, I. H., Jr. & Co.....	48
Box, Alfred & Co.....	43	Conroy, P. J. & Co.....	84	Garrison, A., Foundry Co.....	23	Johnson, S. C.....	89
Boyce Rivet Co.....	104	Consolidated Steel & Wire Co.....	14	Gartland Foundry Co.....	25	Jones, B. M. & Co.....	21
Bradlee & Co.....	16	Continental Iron Works.....	38	Garvin Machine Co.....	55	Jones, Jesse & Co.....	74
Bradley Fertilizer Co.....	46	Copeland & Bacon.....	50	Gautier Steel Department.....	15	Jones & Lamson Machine Co.....	60
Brass Goods Mfg. Co.....	2	Corbin, P. & F.....	82	Gaylor, F. L. Co.....	3	Kayser, Ellison & Co.....	18
Bridgeport Chain Co.....	72	Corning, Edw. & Co.....	16	Gendron Iron Wheel Co.....	74	Keeley, Jerome & Co.....	17
Bridgeport De-oxidized Bronze & Metal Co.....	2	Correspondence School of Mechanics	103	Gibbs Mfg. Co.....	93	Kennedy, Julian.....	26
Bridgeport Gun Implement Co.....	56	Cotton, Barclay W. & Co.....	19	Gilbert & Bennett Mfg. Co.....	8	Keuffel & Esser Co.....	65
Briggs, Marvin.....	55	Coulter & McKenzie Machine Co.....	42	Gleason Tool Co.....	35	Keyless Lock Co.....	83
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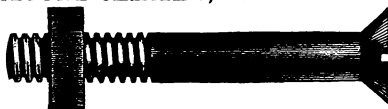
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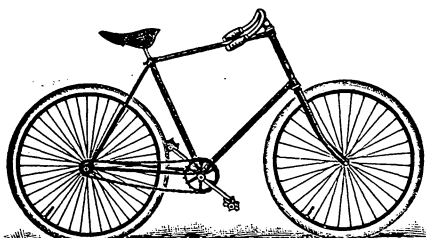
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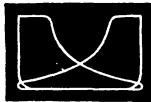
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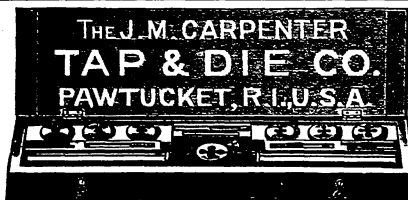
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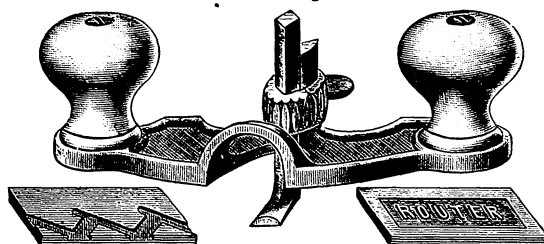
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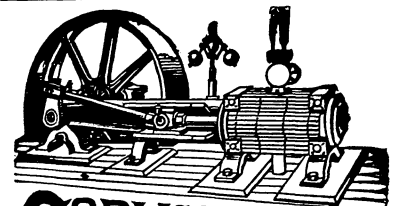
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To whom it may concern: I hereby advise all persons and companies to have the MASON REGULATOR CO.'S DEPTH GAUGE, as I have had the best of satisfaction from them, and hope companies will not be deceived by imitations.

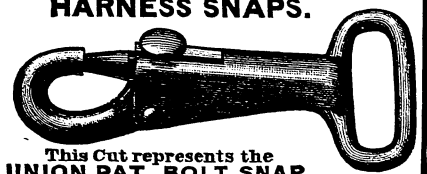
(Signed) Geo. Lang, Jr.

Chickasaw, Ala., Oct. 16th, 1893.

(To Mason Regulator Co., Boston.)

Price, 40 cents, post-paid.

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**THE WILMOT & HOBBS MFG. COMPANY,**  
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MANUFACTURED BY  
**VAN WAGONER & WILLIAMS CO.**  
CLEVELAND, O. and 14 WARREN ST., N. Y.

# THE IRON AGE

THURSDAY, NOVEMBER 16, 1893.

## Naval Rapid Fire Guns.

Considerable interest attaches to the competitive tests of rapid fire guns for the navy recently concluded at the Indian Head proving grounds, they having been the first ever held in this country under such conditions as to afford the opportunity for rigid comparison. As all the guns tested were of home manufacture, the results, as embodied in the report of the Board of Officers, will be of additional interest. Three rapid fire guns were tried—namely, the Hotchkiss, the Driggs-Shroeder and the Sponcel. Of these the first and last are manufactured in New England, while the second is of Philadelphia make. The tests were of an exhaustive nature, special attention being directed to the simplicity and strength of the mechanism and the facility of handling the weapon. As the barrels and ammunition of all three guns are practically identical, the real question to be determined was as to which breech system is best adapted for the naval service.

The board found that although none of the guns withstood all the tests each possessed points of merit peculiar to itself. The Driggs-Shroeder gun, for instance, excelled in rapidity of fire, while the Hotchkiss made the best showing in actual operation—that is, in dismounting and reassembling parts for firing. The Sponcel gun showed the greatest strength in its breech mechanism, but is reported as not attaining to the general merits of the other two. The board found, in short, that there was little to choose between the Hotchkiss and Driggs-Shroeder weapons, although in the opinion of the majority the advantage

inclined slightly in favor of the former. Consequently the guns are placed in order of merit in the report, as follows: Hotchkiss, Driggs-Shroeder and Sponcel. While valuable and satisfactory in many ways the tests tend to prove that the ideal naval rapid fire gun has not

## Four-Valve Tandem Compound Engine.

The four-valve tandem compound steam engine here illustrated is built by Russell & Co. of Massillon, Ohio, and is

designed to meet the requirements of the highest economy in steam consumption. To this end recourse has been had to results obtained from a long experience with the two leading types of automatic engines—namely, releasing and positive, so called from the manner in which the cut off valve is operated. The aim in designing this engine has been to blend the best qualities of both these types. The bed, as shown in Figs. 1 and 2, is of the well known Tangye type, which rests on the foundation its entire length, and possesses great strength and rigidity. The arrangement of the cylinders, pistons, valves and valve gear is clearly shown in Figs. 1 to 4.

The piston is in one piece, cast hollow and fitted with two narrow rings sprung into place for packing. Between these two rings is a broad band of anti-friction metal, the composition of which is such as to expand—on being heated—more than iron, and this makes the anti-friction portion of the piston project beyond the cast iron surface, thus throwing all the wear upon this band and preventing cutting or scoring of cylinder.

The wrist of the crosshead is made of steel, lead lapped to size, and inserted into its place, after which the hole through head and wrist is reamed out and a steel bolt, fitting snugly, driven through and secured with a nut as shown; thus it will be seen that should occasion require the wrist can be removed and another one inserted in its place. The sliding sur-

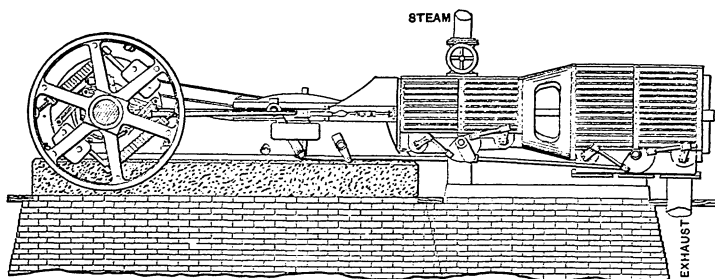


Fig. 1.—Side Elevation.

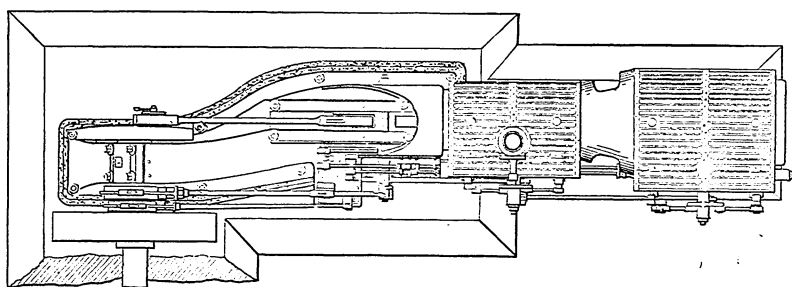


Fig. 2.—Plan.

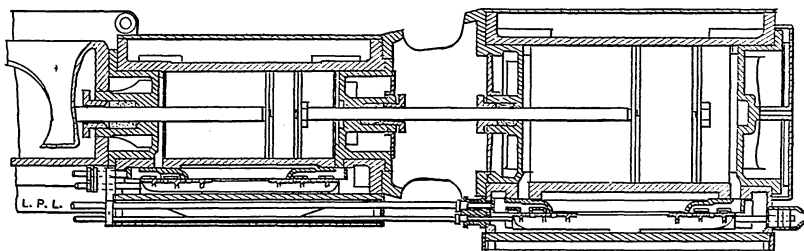


Fig. 3.—Horizontal Section through Cylinders.

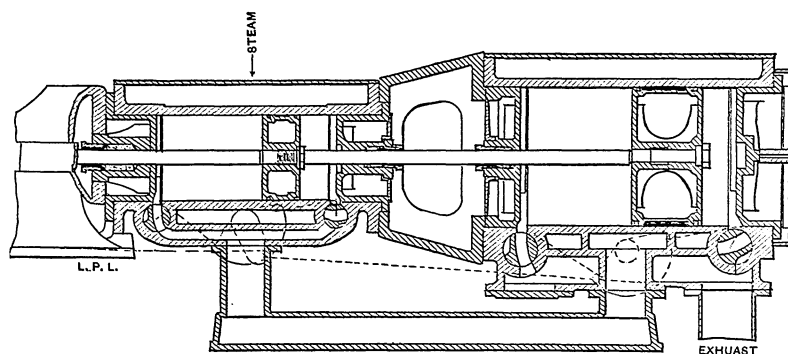


Fig. 4.—Vertical Section through Cylinders.

## FOUR-VALVE TANDEM COMPOUND ENGINE.

yet been produced. Meanwhile the results of the competition may serve to stimulate further inventive efforts in this direction.

The death rate of New York City for last week was 17.46 in 1000, the lowest ever recorded in the city.

faces are lined with the best anti-friction metal, and means for taking up wear in all directions provided. The connecting rod is made of forged steel and its length from center to center of boxes is six cranks. An especial feature of this rod is that the wear in the boxes is taken up in the same direction at both ends, thereby maintaining the length between centers always the same, which in the case of small clearance is very desirable.

The governor shown in Fig. 5 is that employed with the automatic engines built by this company. It controls the speed of the engine through the cut off eccentric, which fits loosely on the engine shaft and is connected with the weight arms in such a manner that the cut off eccentric is moved around the engine shaft, either forward or backward, as the weights change their position, thereby cutting the steam off earlier or later in the stroke as the governor, or more properly the weights, adjust themselves to the load. When the cut off eccentric is rotated forward—that is, around the shaft in the direction the

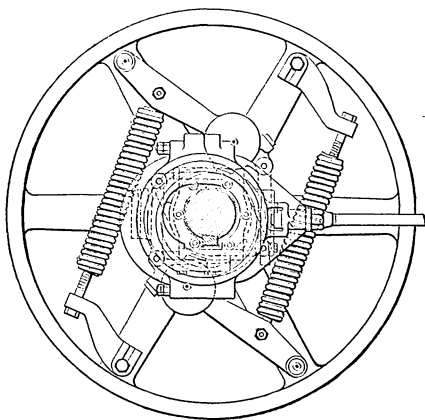


Fig. 5.—Governor.

#### FOUR-VALVE TANDEM COMPOUND ENGINE.

engine runs—the steam is cut off earlier in the stroke; when the eccentric is rotated backward the steam is cut off later in the stroke. Indicator cards taken from these engines show the governor to be extremely sensitive under widely varying conditions of load.

A. Falkenau of Eleventh street and Ridge avenue, Philadelphia, mechanical engineer, is making a number of dummy projectiles for the Pneumatic Torpedo & Construction Company of New York, which are intended for service on board of the steamship "El Cid," recently purchased by the Brazilian Government. They are 10-inch subcaliber and for 15-inch guns.

The works of Pedrick & Ayer of Philadelphia, manufacturers of machine tools, which firm recently made an assignment for the benefit of their creditors, are now in full operation and running 10½ hours per day, under the management of the assignee, James M. Hibbs of the firm of Hoopes & Townsend, Philadelphia. A good many orders are in hand, and will be filled as rapidly as possible. A company is in process of formation for the purpose of taking over the business of the late firm, and Mr. Pedrick, one of the partners, will be one of the largest shareholders.

## The Rail Combination.

Some facts bearing upon the Steel Rail Association, which is to terminate its existence at the end of this year, are pertinent, because during its history the industry has undergone important changes from a technical and commercial point of view. The character of the agreement under which the mills worked during the earlier part of its life is well shown by the following memorandum, entered into on August 2, 1887:

Memorandum of agreement, entered into August 2, 1887, by and between the North Chicago Rolling Mill Company, the Cambria Iron Company, the Pennsylvania Steel Company, the Union Steel Company, the Lackawanna Iron & Coal Company, the Joliet Steel Company, the Western Steel Company, the Cleveland Rolling Mill Company, Carnegie Brothers & Co., Limited; Carnegie, Phipps & Co., Limited; the Bethlehem Iron Company, the Scranton Steel Company, the Troy Steel & Iron Company, the Worcester Steel Works and the Springfield Iron Company.

We, the before-named companies and corporations, manufacturers of steel rails, hereby mutually agree one with the other, that we will restrict our sales and the product of steel rails of 50 pounds to the yard and upward, applying to orders taken by us and to be delivered by us or from our respective works during the year 1888, as herein-after allotted and limited; and we respectively bind ourselves not to sell in excess of our current allotments, without first obtaining the consent of the Board of Control thereto—that is to say:

IT IS AGREED, "There shall now be made an allotment of 800,000 tons of rails, which shall be divided and apportioned to and among the several parties hereto to be sold by them during the year 1888, upon the following basis of percentages, to wit: North Chicago Rolling Mill Company, 12½ per cent.; Pennsylvania Steel Company, 9½ per cent.; Bethlehem Iron Company, 9 per cent.; Carnegie Bros. & Co., Limited, and Carnegie, Phipps & Co., Limited, (jointly), 13½ per cent.; Joliet Steel Company, 8 per cent.; Lackawanna Iron & Coal Company, 8 per cent.; Cambria Iron Company, 8 per cent.; Scranton Steel Company, 8 per cent.; The Union Steel Company, 8 per cent.; Cleveland Rolling Mill Company, 4½ per cent.; Troy Steel & Iron Company, 4½ per cent.; Western Steel Company, 4½ per cent.; Worcester Steel Works, 1½ per cent."

And in addition to the said allotment of 800,000 tons of rails above allotted, an additional allotment of 250,000 tons is hereby made and allotted to the Board of Control, to be reallocated and reapportioned by it, as and to whom it may deem equitable, in the adjustment of any differences that may arise. It being also further agreed that all subsequent allotments of rails hereafter made, to be sold under this agreement during the year 1888, shall also be divided and apportioned to the several parties hereto in the same ratio of percentages as said apportionment of 800,000 tons is herein divided and apportioned.

It is further agreed, "That the Board of Control shall, from time to time, make such further allotments as shall be necessary to at all times keep the unsold allotments at least 200,000 tons in excess of the total current sales, as shown by the monthly reports of

sales. This is to be in addition to the then unappropriated part of the 250,000 tons hereinbefore allotted to the Board of Control to adjust differences."

It is further agreed, "On the first day of April, July and October, the Board of Control are authorized and directed to cancel such part of the unmade allotments of the respective parties hereto as they the said Board of Control shall determine such party unable to make in due time, and all allotments so canceled the Board of Control shall have the right to reallocate to any of the other parties hereto; it being understood that all such cancellations shall apply only to allotments standing to the credit of the respective parties hereto on the dates above named, but no reallocation as aforesaid shall be made by the Board of Control to any of the parties hereto for the purpose of enabling them, or any of them, to make and sell rails from foreign made blooms."

It is further agreed, "That all transfers of parts of allotments from one party to another shall be made by the Board of Control."

It is further agreed, "That there shall be a Board of Control, consisting of three members, namely, Orrin W. Potter, Luther S. Bent and W. W. Thurston, who shall have power to employ a paid secretary and treasurer."

It is further agreed, "That the Board of Control, upon the written consent of 75 per cent. of the percentages as hereinbefore named, shall increase the allotments for the year 1888, and such increase shall be allotted to the parties hereto as hereinbefore provided."

It is further agreed, "That each party whose name is hereunto annexed, shall and will make monthly returns to the Board of Control of all contracts for delivery of rails of 50 pounds to the yard and upward during the year 1888, and also of all shipments of such rails made by them during said year; a copy of such return shall be furnished to each party hereto."

It is further agreed, "That all the parties hereto shall and will, on or before January 15, 1888, make a written return to the Board of Control of all rails of 50 pounds to the yard and upward (designating the weight) which they respectively had on hand January 1, 1888, stating whether the same are sold, and if sold, on what order they apply."

It is further agreed, "That the Board of Control shall have the right whenever they deem it expedient to convene a meeting of the parties hereto, and they shall give at least ten days' previous notice of all meetings, and any business transacted at such meetings, and receiving 75 per cent. of the votes present thereat, either in person or by proxy, shall be binding on all the parties hereto, excepting as to a change in percentages as aforesaid."

The Board of Control shall be required to call a meeting of the parties hereto when requested so to do in writing, signed by any three of the contracting parties, but such request and such notice shall state the object for which such meeting is called.

It shall be the duty of the Board of Control to have a proper record kept of all the returns made to it, with power from time to time to change the form of return as they may deem expedient.

The Board of Control shall have authority to levy an assessment, pro rata to the allotted tonnage, to defray the actual expenses made necessary to carry out this agreement.

It is further agreed, "That we will, respectively, immediately make return

to the Board of Control of all rails of 50 pounds to the yard and upward which we are now under contract to deliver during the year 1888, said return to state to whom such rails are sold and when they are to be delivered."

North Chicago Rolling Mill Company, by O. W. Potter, president  
Cambria Iron Company, by E. Y. Townsend, president.

Pennsylvania Steel Company, by Luther S. Bent, vice-president.

The Union Steel Company, by H. A. Gray, secretary and treasurer.

Lackawanna Iron & Coal Company, by B. G. Clarke, vice president.

Joliet Steel Company, by W. R. Stirling, treasurer.

Western Steel Company, by A. M. Wilcox, president.

Cleveland Rolling Mill Company, by Wm. Chisholm, president.

Carnegie Bros., Limited, by D. A. Stewart, V. C.

Carnegie, Phipps & Co., Limited, by John Walker, chairman.

The Bethlehem Iron Company, by Wm. W. Thurston, vice-president.

The Scranton Steel Company, by W. W. Scranton, president.

Troy Steel & Iron Company, Selden E. Marvin, secretary.

Worcester Steel Works, by Samuel D. Nye, manager.

The Springfield Iron Company, by Charles Ridgely, president.

It will be observed that the allotment was changed somewhat from that prevailing in 1887, when the figures were:

	1887 Allotment. Tons.	Per cent.	1888 Allotment. Tons.
Bethlehem.....	199,130	10.15	9.0
Cambria.....	158,111	8.07	8.0
Carnegie.....	248,130	12.70	13.5
Cleveland.....	96,549	4.92	4.8
Joliet.....	158,111	8.07	8.0
Lackawanna.....	158,111	8.07	8.0
Scranton.....	158,111	8.07	8.0
North Chicago.....	244,644	12.47	12.5
Pennsylvania.....	199,130	10.15	9.8
Troy.....	101,982	5.20	4.5
Union.....	130,563	6.65	8.0
Worcester.....	27,247	1.39	1.4
Western.....	80,340	4.10	4.5
Total.....	1,961,139	100.00	100.0

The actual shipments of rails during the year 1888 on account of the allotments of that year were as follows:

	Tons.
North Chicago.....	161,945
Carnegie.....	138,946
Scranton.....	136,029
Lackawanna.....	128,510
Union.....	126,016
Pennsylvania.....	121,960
Joliet.....	114,675
Bethlehem.....	85,448
Cambria.....	82,463
Western.....	39,168
Cleveland.....	29,949
Troy.....	25,110
Worcester.....	6,539
Springfield (extra).....	3,705
Total.....	1,200,184

In March, 1889, the consolidation of the mills in the Illinois district took place, the North Chicago, Joliet and Union companies being merged into the Illinois Steel Company. This left out of the combination only the Duquesne Works, at Pittsburgh, and the Colorado Coal & Iron Company, at Pueblo. The shipments of the different mills in 1889 were:

	Tons.
Illinois.....	401,795
Carnegie.....	267,461
Scranton.....	155,814
Lackawanna.....	139,141
Bethlehem.....	121,262
Pennsylvania.....	103,931
Cambria.....	64,947
Cleveland.....	14,807
Troy.....	2,280
Total.....	1,271,438

The next year brought a dropping out of all the smaller mills for good. Only the Cleveland Rolling Mill made an effort later on to remodel its mill, but received inducements to abandon the effort.

The product of the different mills in 1890 is shown in the following table:

Rail Product in 1890.

	Tons.	Allotment. Per cent.
Bethlehem.....	128,283	8
Cambria.....	105,552	8
Carnegie.....	301,659	57
Illinois.....	413,850	57
Lackawanna.....	148,737	8
Pennsylvania.....	115,077	9
Scranton.....	182,049	8
Total.....	1,388,186	

The active competition in the West of the Duquesne mill, which kept outside of the combination, and the sharp rivalry between the Scranton and Lackawanna works robbed the existing arrangement of much of its power for good. In November, 1890, the Duquesne mill was acquired by the Carnegie interest, and negotiations were opened for a consolidation of the two Eastern mills named. These led to the purchase of the Scranton by the Lackawanna Company early in 1891.

There had been modifications in the percentages, and ultimately the allotment system was modified in one particularly important feature. Monthly reports of shipments were made to the secretary, who distributed the total according to the allotment basis. Those mills which had exceeded their share paid into the treasury a penalty of \$1.50 per ton at one period of the life of the association and \$2.50 during another time. Thus it might happen, and it did occur, that mills whose customers called for their material early in the year might far exceed their allotment, but latter in the season, having finished their orders, they became receivers from the fund instead of contributors. At no time was the price of steel rails a part of the formal agreement, although understandings among mills concerning work emanating in debatable territory did occur, and in some instances protection was accorded to mills called upon to fight foreign rails in distant markets.

Later on the Pennsylvania Steel Company built the Sparrow's Point mill, and again an element of uncertainty appeared. The deliveries in 1892 were as follows:

Rail Deliveries in 1892.

	Tons.
Bethlehem.....	113,661
Cambria.....	86,739
Carnegie.....	327,713
Illinois.....	411,477
Lackawanna.....	178,818
Pennsylvania.....	51,053
Maryland.....	88,705
Total.....	1,260,141

The allotment of the Maryland Company was adjusted by giving that mill 8 per cent., making the total 108 per cent., the others retaining the same distribution of the 100 per cent. The shipments of the first half of the current year were as follows:

Rail Shipments, First Half 1893.

	Tons.
Bethlehem.....	35,189
Cambria.....	44,336
Carnegie.....	122,545
Illinois.....	156,433
Lackawanna.....	119,849
Maryland.....	66,023
Pennsylvania.....	27,509
Total.....	571,894

Differences arose this year among the Eastern mills as to percentages, but they

were finally adjusted among them, and the Eastern works went into the meeting held a month since as a unit so far as that question was concerned, the figures arrived at to be retroactive to April 1. They offered the Western mills the same aggregate percentage, to be distributed among the two, as before, by agreement between them. The Carnegie interest demurred to a further continuance of the association after its expiration by limitation. The same party declined, furthermore, to go into any understanding as to prices, and thus practically disrupted the organization.

In the earlier days of the life of the association prices showed a pretty steady, though slow, decline. The ties which united the different mills were exceedingly loose. Individual mills took as much business as they could capture, and when their allotment had been filled or had been exceeded simply demanded the distribution of additional tonnage and got it. The existence of an understanding among the mills probably did have some effect upon prices at that period, but it was far from exercising a commanding control upon values.

It was only when the second phase in the history of the association was entered into, when the penalty clause for shipments in excess of allotment was introduced, that some resemblance of uniformity and steadiness was given to values. While there were times when an informal agreement as to prices did exist among the makers, that feature was never a part of the formal contract entered into by the mills. It is technically true, therefore, that the combination allowed every mill freedom to produce as much as it desired at any price which it might see fit to name. The penalty feature of the agreement induced the mills to keep cutting within bounds and acted as a check upon a too aggressive campaign of selling.

At one time the producers lowered the price by \$1 per ton, but did not follow the market for raw materials down. The result was a constantly widening gap between the price of steel rails and the price of Bessemer pig and soft steel billets, the latter a parallel product. It is conceded by authorities in the rail trade that this refusal to abandon the higher level was a mistake in more than one direction.

With the rapid falling off in the demand, the temptation to capture business became greater and greater. Rather than make open concessions in prices the different companies resorted to other means. Inducements were offered in the way of exceedingly low prices on splice bars and other track material, much to the distress of producers whose sole specialty this class of trade was. Another method was to quote prices delivered to point of consumption at a nominal advance over the mill price. Again, the railroads who agreed to take new rails got a chance to sell their old material at figures considerably above the prices which they could possibly realize in the open market. It goes without saying that all this had a very demoralizing effect on the producers themselves and on the buyers.

The steel rail industry was getting the credit and subjecting itself to the reproach of pursuing a tyrannical course in its relations with the buyers. It was a shining mark for the attacks of free traders, whose long list of trusts and combinations in the iron trade had shrunk to that one organization, all the others having collapsed under the stress of a declining market. It was in this

wav involving the whole iron trade in difficulties and was putting its members on the defensive.

There were other features which made the steel rail association unpopular in the iron trade. It was supposed to be injurious to other branches, notably to the outside mills who were rolling splice bars. It was urged that some of the works which had other departments than the rail business were sacrificing a part of the profits of that branch in order to operate more vigorously and effectually in their competition against outside rival concerns in their other branches. Thus the lack of full employment for rails was supposed to indicate the danger that the idle plant would be utilized to produce steel billets. There can be no doubt that the decline in billets was aided by the eagerness, at times, of some of the rail mills to keep their Bessemer plants and rolling mills in active operation.

We have frequently protested against the persistent misrepresentation on the part of the enemies of the American iron trade of calling the steel rail combination a trust. If it had been it would not have succumbed to the pressure of hard times. Whether or not the combination has abused its power may be a matter for controversy. From an organization which was essentially weak, it became a power through consolidation and purchase of some of the original members, and through the elimination owing to inherent weakness of the smaller concerns. But at the time when the stronger compact was formed the price which was asked for rails by the mills was decidedly reasonable. It was fair alike to the consumer and to those manufacturers who had managed to survive, and whose aggregate capacity the country needed in order to possess the equipment to meet the extraordinary demands which spurts in railroad building in this country suddenly thrust upon the makers. We hold that it is poor policy on the part of consumers whose requirements are subject to violent fluctuations to starve a large percentage of producers to death during the lean years, because in periods of an extraordinary demand they must submit to tremendous advances and vexatious and costly delays.

The Canton Steel Roofing Company, Canton, Ohio, have reproduced their factory, which was destroyed by fire, and have added many new facilities. The building is lined inside and outside with sheet iron, following the surface, care being taken not to leave any places which would act as fire flues or air conductors. It is said to be the first building of its kind ever constructed. Every part of the wood work is covered completely. The plant will be equipped with new and improved machinery, calculated to produce maximum quality at minimum cost.

On the night of October 31 the plant of the Irondale Steel & Iron Company, at Anderson, Ind., was entirely destroyed by fire, which is supposed to have originated in the oil house. The works, consisting of two sheet mills and a puddle mill, with the necessary bar rolling capacity, were in full operation at the time, but as the buildings were almost entirely constructed of wood, which was very old and dry, the fire was of brief duration. With the exception of some new parts added last spring, the plant consisted of buildings and machinery which had passed

through the hands of various owners, having been moved from Aurora, Ind., several years ago. The loss was about \$40,000, partly covered by insurance. It is probable that the company will rebuild at a nearby point and take advantage of an abundant supply of natural gas in the territory under consideration. This unfortunate circumstance takes 20 tons of sheets per day out of the market at a time when orders are becoming more plentiful, and throws about 150 men out of employment.

### American Versus English Wood Working Machinery.

Frederick Danner, vice-president of the J. A. Fay & Egan Company of Cincinnati, has written a letter to the *American Exporter*, in which he deals with the statement emanating from English manufacturers of wood working machinery, in the columns of the *Iron-monger*, concerning the character of this class of machinery as made in this country and abroad. We take from it the following passages:

M. Glover & Co. attach considerable importance to their having sold one machine to an American house, they having put the same in on its merits, and as it was not returned they take it for granted that its equal is not made in the United States. It is possible that this is correct, because kindling wood choppers are not made, or even thought of, by any reliable wood working machinery manufacturer in this country. Englishmen who have called upon us, and who have lately purchased our wood working machinery, tell us that Messrs. Glover & Co. are manufacturers of kindling wood choppers and emery grinding machines. If so, their ability as expert judges may be questioned by the trade. They claim that they cannot understand why American manufacturers do not pay more attention to the construction of their machines, so as to bring them up to the English standard, and then add that foundry castings, wages and materials are higher in price in America, and so we make up the deficiency by eulogizing our goods and ideas more than English makers find it necessary to do. But, at the same time, they allow that Americans know better than they how to apply machinery to new purposes, and that if we can only get a variety of machines to do the work we are elated, and this they consider a weakness. I consider this ignorance on their part, and hence I will take this matter up in detail.

In the first place, all English manufacturers of wood working machinery acknowledge the superiority of American machinery by copying the same. Some do it openly and admit it; others do it on the sly and disclaim it. Sager of Halifax and Haigh of Oldham acknowledged this to me when I was in England in 1889, by saying: "We take an American machine as a copy, and by putting in a little more metal, and placing the same on the market as an improved English-American machine, we can sell them." These two manufacturers are leading houses in their line in England. A. Ransome & Co., some years ago, thought enough of American ability to hire an American designer of wood working machinery, and a number of machines designed by this American are illustrated in their present catalogue. A short time ago one of the Ransomes came to America for ideas, and, I believe, for the special purpose of copying what he could, for the purpose of rearranging his company's plant upon the American plan upon his return home.

Thomas Robinson & Co. of Rochdale wrote to the Egan Company for plans of their power feed sanding machines, but could not agree upon the price, and they now make a power feed sander which is a direct copy of American machines. Now, this wholesale copying is bound to result as follows: The American manufacturer puts a new machine on the market, which is at once copied by an English or a German manufacturer, but as it takes time and practical experience to develop the weak points in any newly designed machine, it is to be assumed that the copyist does not get the benefit of this practical experience when he copies the original, untried machine. It sometimes takes years to develop

all the weaknesses, and the reason why the English manufacturer considers our machinery too light in weight is simply because he has copied discarded machinery. The question arises, are the American machines light in weight? At the present time I say "no." The J. A. Fay & Egan Company make a 24-inch single cylinder thickening planer, weight 5000 pounds, and they also make a 30-inch double cylinder machine which weighs 8000 pounds. I doubt very much if any English manufacturer can show as heavy machines as these for the purposes intended.

As to the high price of castings and wages: From a conversation I had with several foundrymen from England a short time ago I find that the price of castings there varies from 2 to 8 cents per pound, which is exactly the price in Cincinnati. That wages are higher in this country I admit, but it is a well-known fact that the American mechanic does more work than the English or the German mechanic in the same time. Then, the American iron is far stronger than the English, and consequently it does not require so much of it to obtain the same result.

In regard to separate machines for special work, we only recommend combination machines for small manufacturers, so as to enable them to do a variety of work with as little outlay as possible at the outset for machinery. Where close competition, however, has to be overcome it is necessary to have machines made to do only one class of work, so as to keep them running steadily on one kind of stock, the results of which, while apparent to the American, cannot be appreciated by Englishmen.

In regard to babbitt metal: This our English manufacturers take special pains to condemn, while at the same time they are using it. In 1889 I visited the Loudon & Northwestern repair shops at Rugby, and there saw babbitt metal bushings fitted to the connecting rods of the locomotives. To this fact I called the attention of my friend, who, by the way, was an engineer of 40 years' experience with the same company, and he replied: "This is your Yankee babbitt metal. It wears well, is used to put in the rods, and is liked by all our men." Some of the users of wood working machinery in England are beginning to realize that when babbitt metal is used it costs less for repairs, because they can then do their own repairing.

In conclusion, I ought to say something about balancing. While in Glasgow I visited a large furniture factory, and there saw a nearly new machine, weighing about 6000 pounds, fitted with bronze boxes, and built by a responsible English firm, making moldings 2 inches wide, at the rate of 1500 feet per day of ten hours. The cutter head and countershaft pulleys were all very much out of balance; the boxes were loose in the frame; the cutter head mandrel was running loose in the journal and the machine vibrating badly, while the work turned out was extremely rough. An American machine for this class of work would weigh about 1200 pounds and would turn out about 10,000 feet of molding in the same time. The boxes as we construct them could not get loose in the frame, while less power would be consumed and the work turned out would be smooth. Another instance occurred at Keighly, Yorkshire, where I found a 24 inch planer running with the cutter head out of balance enough to make the machine shake the whole floor on which it stood. The boxes were loose in the frames and the machine was condemned by a wood working machinery manufacturer, although it was not an old machine by any means. The trouble was that the cutter head was out of balance. In the South of England I visited a shop where a large manufacturer of wood working machinery had undertaken to put up some line shafting 3 inches in diameter, with a pulley on same 4 feet in diameter and 20-inch face. When under speed it shook the building, and the proprietor, becoming alarmed, consulted the expert of the firm who did the work. It was decided that the shaft was too light, and a 4-inch shaft was substituted, with the same result. A Yankee mechanic, who was in the mill, remarked that if they would take the pulley off and balance the same they would have no trouble. They finally tried this, and found the pulley several pounds out of balance, and when this was remedied the trouble ceased.

Now, taking the Glasgow machine, which weighed about 6000 pounds; why did not a frame of this size and weight hold the cylinder from jumping about in the boxes? Simply because 6000 pounds did not affect

the running of the cylinders in any manner.

The English makers of wood working machinery should not run down American machinery, for their own weaknesses can be shown up at all times to their disadvantage.

### Multiple Expansion Engine.

The principal object sought by the inventor of this engine, C. C. Worthington of Irvington, N. Y., was to render the pistons of the respective cylinders more readily accessible and removable than in the usual constructions of this type. The drawing represents the design applied to a duplex horizontal direct acting pumping triple expansion engine of the Worthington type. A, B and C are the high, intermediate and low pressure steam cylinders and *a*, *b* and *c* their respective pistons, D being the water cylinders on each side of the engine. Steam is delivered to the high pressure through the pipe E and exhausted from that cylinder to the intermediate through the pipe F, thence to the low pressure through the pipe G and to the condenser through the exhaust H. The steam valves may be of any suitable construction and operated by any suitable

readily and without interference with any piston rod or stuffing box, and that, as each of the pistons is carried at the end of its rod, they may all be removed by simply slacking off the respective nuts 3. In this construction, also, the use of keys in the cylinders may be entirely avoided, and the area of the smaller pistons need not be reduced by rods larger than sufficient to carry their respective individual loads. The direct course of steam between the high pressure and intermediate and low pressure cylinders is retained, also, and in case of repairs either the intermediate or the high pressure pistons and valves, or both, could be removed and the engine run with the remaining cylinders or cylinder.

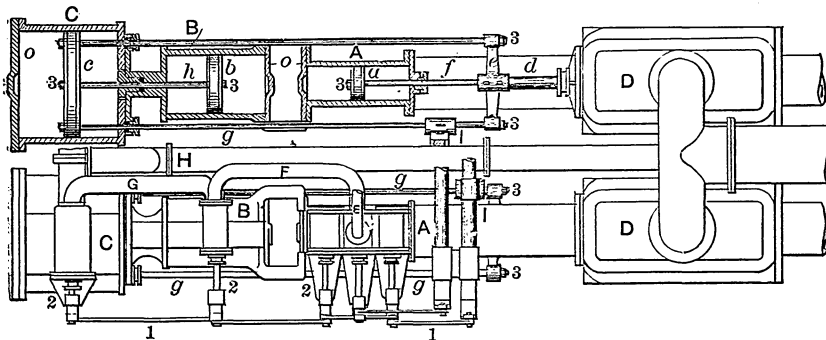
### Lake Superior News.

There is no question but iron ore matters look better along all the Lake Superior ranges. Two or three mines on the Marquette and Menominee ranges have decided to start, and, in fact, are starting, while the Norrie, the giant of the Gogebic, will resume next week with a quarter force. *Per contra*, there has been one complete shut down

for a great deal of what has gone forward during much of the season, especially when freight rates were lowest, was sent out to gain the advantage of low rates.

Interest on the bonds of the ambitious West Superior Iron & Steel Company, brought into much prominence through the operations of that late Napoleon of Finance, Weeks, is understood to have defaulted November 1, and the plant will fall to the bondholders, who are claimed to be friendly to the new Rockefeller-Merritt combination. It is not at all improbable that the plant may be started up next spring and operated in an all around businesslike way. If so, several departments will necessarily be added.

L. Merritt, president of the Consolidated Mines, talks in a very businesslike way of the work of his company for next year and their standing among the ranges. He expects the company to mine 1,000,000 tons in 1894, and looks for nearly as much more to come off the new range from leased mines that will ship over the Consolidated road. The entire range will likely mine, he thinks, not over a quarter the ore from Lake Superior, so that it could not, if it would, set the price. This he looks to see about \$4 for standard Bessemer, with the new mines selling at a little less in order to introduce their untried ores to Eastern furnaces.



MULTIPLE EXPANSION ENGINE.

ble valve movement, but cut off valves on only the high pressure cylinder are preferably used, and rotary valves arranged as shown, these valves being operated by the lever valve motion I, connecting rods 1 and cranks 2 on the valve stems, as usual in this class of engines.

Referring to the sectional drawing, *d* is the main piston rod through which the power from the three cylinders is applied. Upon this rod is a cross head, *e*, to which the pistons of the three cylinders are connected. The high pressure piston is connected to the cross head by the rod *f*, which is preferably separate from the main piston rod *d* and secured to the cross head by a separate key, as shown. The cross head is connected to the low pressure piston by the rods *g*, which pass outside the high and intermediate cylinders.

The intermediate pressure piston *b* is connected directly to the low pressure piston *c* by its piston rod *h*, secured at its opposite ends to the pistons *b*, *c*, preferably by nuts 3, as shown. Each of the cylinders, therefore, has one head through which the piston rod does not pass, and these heads *o* are made removable in the usual manner, the two inner cylinders A, B being separated sufficiently to afford space for the removal of the respective heads *o* and pistons *a*, *b*. It will be seen that in this construction each of the three pistons is readily accessible by removing the respective cylinder heads *o*, that each of these heads may be removed

at Ishpeming, the Cliffs shafts. The big Minnesota Iron Company are to begin at once a gradual resumption, mining to start so soon as pumps and bailers can clean out the water. The Minnesota has shipped all the Bessemer stock piles that were on hand when mining ceased in August, but has some 120,000 tons of non-Bessemer on hand. The Chandler, also on the Vermillion, is to resume, and will employ a goodly force. On the Mesaba, the Franklin, which shut down two weeks ago, is to resume with 200 men next week, and will stock pile 100,000 tons during the winter. This mine, which has an enormous ore body and is one of the best underground properties on the new range, will put in hoisting equipment for 8000 tons a day—two 200 horse-power Corliss engines and two three-skip shafts—and expects to send out next year 500,000 tons. Franklin Rockefeller and G. Corrigan are its owners. The Consolidated Iron Mines are stripping a full 48 acre tract at the Mountain Iron and Rathbun, and talk of 1,000,000 tons from there next season.

Iron ore shipments last week were 53,353 tons from Duluth, 25,349 from Two Harbors, and 22,000 from Ashland. For the season they will probably total 810,000 from the Vermillion range, 550,000 from the Mesaba, and 1,100,000 from Ashland, which latter includes eight-tenths of the Gogebic business.

A vast quantity of unsold ore is doubtless lying on Lake Erie docks,

The Turner & Seymour Mfg. Company, at Torrington, Conn., have decided to build their new foundry of iron and have placed the contract with the Berlin Iron Bridge Company of East Berlin, Conn. The old foundry burned a short time ago and the company have determined to build the new foundry entirely of iron and brick, the side walls being of brick, the roof of iron. The roof will be furnished by the Berlin Iron Bridge Company of East Berlin, Conn., and will consist of iron trusses and iron purlins covered with the Berlin anti-condensation corrugated iron. When completed, the building will contain no wood work whatever except the window frames and casings, so that it will be absolutely fire proof, and it is the intention of the Turner & Seymour Mfg. Company to carry no insurance on the building, as the Berlin Company guarantee that if all the wooden flasks which the company use at one time were piled in one place in the building and fired the roof would suffer no damage.

J. Sandford, proprietor of the Pioneer Eskbank Iron Works, Lithgow, New South Wales, who is now visiting England, is reported to be negotiating for an extensive steel plant of the most modern description. It is the intention of this Australian capitalist to lay down works in New South Wales for steel manufacture, in order to obviate the necessity of importing English and other foreign material. He has lately embarked in the production of corrugated iron roofing, sheets and other similar building material, the first ever made in Australia.

J. G. Pangborn of Baltimore, who was in charge of the railroad exhibit at Chicago, is preparing an *edition de luxe* on railroads as represented at the World's Fair. We understand that the expenditure involved in completing this volume is nearly \$120,000 and that the book will be published by subscription at \$25.

## Sheet Mill Progress.—II.

BY A. BEARD, CAMBRIDGE, OHIO.

### Modern Housing.

Parallel with the increase in weight of sheet mill machinery designs have been improved. The strength has been distributed to parts where it is required, and an effort more pleasing to the eye obtained. Illustrations are given in this article of various makes of housings. These will serve to show the ideas of different makers.

The high shoulders have disappeared and there is more symmetry about the modern housings. Wrought iron screws, which were continually being "jammed" and a source of great trouble and annoyance, have given place to steel screws, and the diameter has been increased from 6 to 8 inches. Dovetailed bed plates, in which housings were fastened by means of wooden blocks and iron wedges, have disappeared and V-shaped bed plates have taken their place. Upon this bed plate housings can be easily moved and made secure in a few minutes; previously it took hours to do this work. Every improvement that can be suggested has been made to prevent breakage and keep things moving.

Herein lies profit for progressive mill owners. Keeping in continuous operation reduces standing charges, such as salaries, taxes, &c., to a small cost per ton of finished product, and success follows.

It is an unexplained truth that while all these changes have been going on in design and construction of machinery, sheet mill men have made but little progress in improving methods of working. Outside influences have done more in this direction than has been done in sheet mills. Steel bars rolled on universal and other specially constructed mills, cleaned from scale in rolling, have to a large extent taken the place of bars made from muck bar piles. Quality has been improved without additional cost, and so many steel sheets of superior finish have found their way into market at the same price as iron sheets that consumers have grown critical, and it is a difficult matter to dispose of large quantities of iron sheets unless corrugators and roofing men are ready to buy.

### Reworking Scrap.

Following cheap steel sheet bars several mills have been built without bar mills attached to them, no provision being made for reworking the scrap or trimmings from sides and ends of sheet packs. This has been found to be a source of trouble, as sheet scrap cannot be sold at a figure that will pay for the trouble and expense of handling and transporting it to other mills to be reworked. It is too light and bulky. Sheet mill managers have always found it necessary to devise means of using their scrap in an economical manner. A common method is to bushel the scrap in an ordinary puddling furnace, pass through the squeezer and roll into a bar, which is cut to length and made into a pile, reheated and rolled into sheet bars. To save the expense of one heat, it is now a custom in many mills to fagot scrap.

The method employed is as follows: A bench is constructed upon which a wrought iron box is placed, the ends being open and a door on the front side. In the bottom of this box a muck

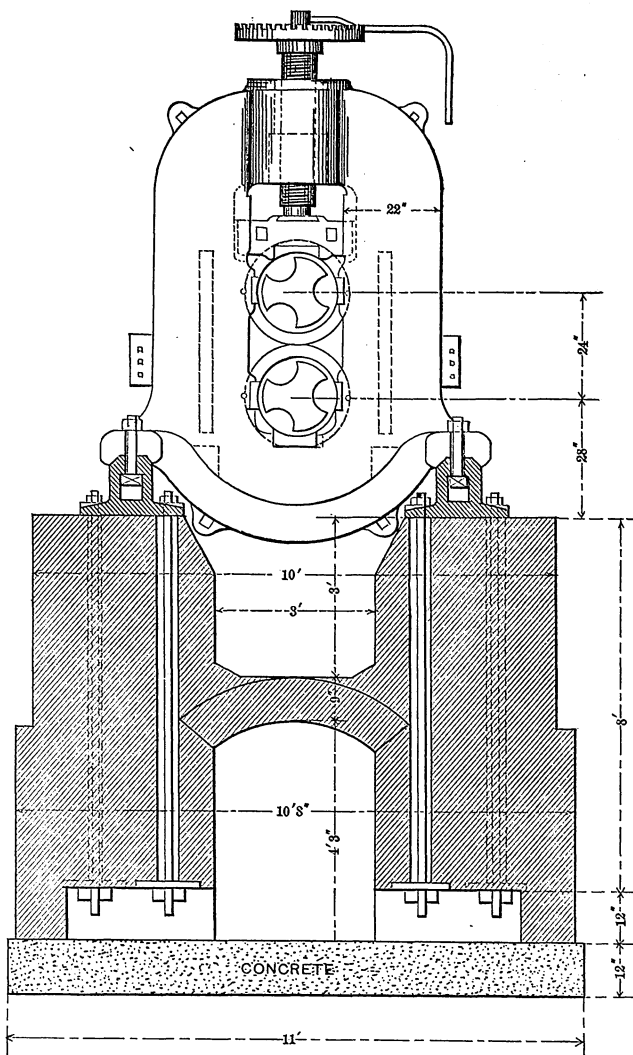


Fig. 6.—Sheet Mill Housing, Booth Design, 1893.—24-Inch Rolls.—Weight, 23,000 Pounds.

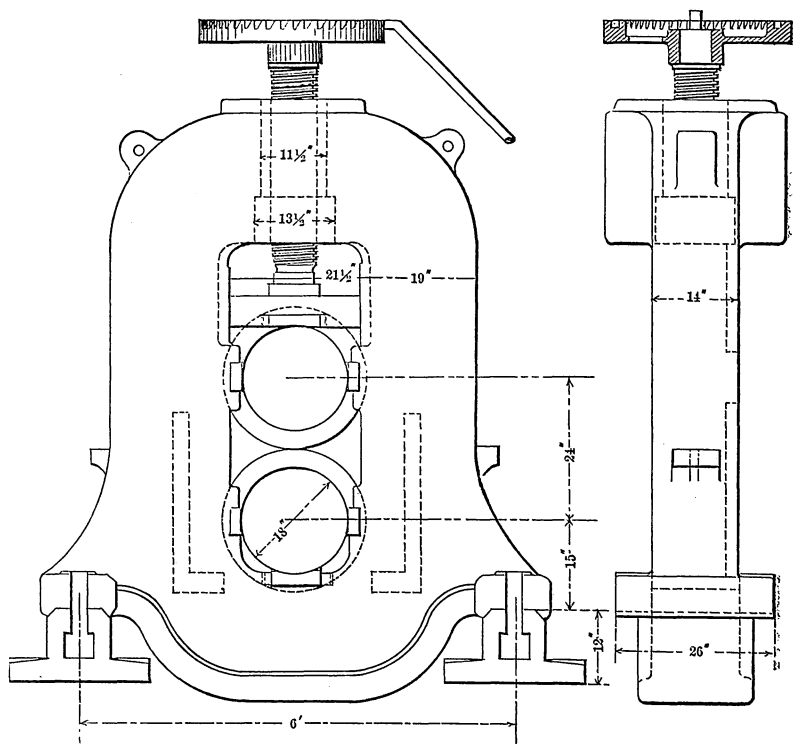


Fig. 7.—Sheet Mill Housing, Lewis Design, 1893.—24-Inch Rolls.—Weight, 19,500 Pounds.

SHEET MILL PROGRESS.

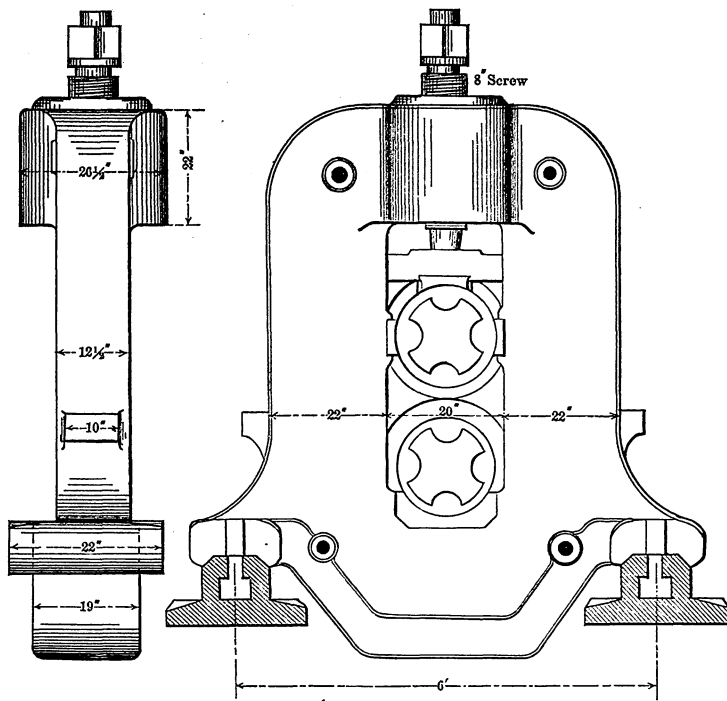


Fig. 8.—Sheet Mill Housing, Leechburg Design.—24-Inch Rolls.—Weight, 21,000 Pounds.

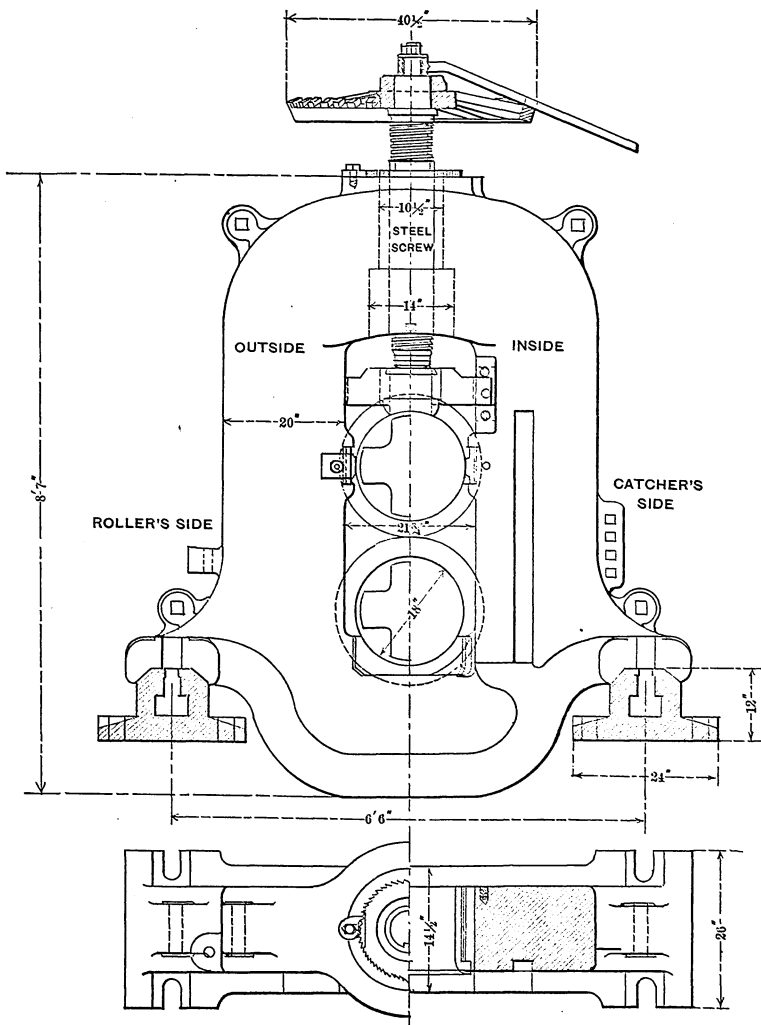


Fig. 9.—Sheet Mill Housing, Garrison Design.—Weight, 21,000 Pounds.

SHEET MILL PROGRESS.

bar is placed, and upon this sheet scrap bent to the length of the bar is piled, another muck bar is placed on top of the scrap, then more scrap and a third muck bar on top of the fagot. The whole pile or fagot is then about 12 inches high, it is reduced by means of a screw to a height of 7 or 8 inches and bound together with round iron  $\frac{1}{4}$  inch diameter. It is necessary that iron be used for binding, if steel is used it will not unite with the muck bar and a seam is left in the bar. In this manner nearly all the scrap can be worked up into such shape that only one heat is required to roll into sheet bars ready for use. Attempts have often been made to work scrap fagots in this manner without using muck bars but without success. The scrap works dry and muck bar is necessary as a flux. The proportion of scrap to muck bar in a well made fagot is about two-thirds. This plan of using scrap is second only in cheapness to the practice of rolling sheets from ends of boiler and ship plate. In Scotland large quantities of sheets are made in this manner, but American shipyards are not so numerous, and only a limited quantity of the material can be obtained.

Having described the general methods of rolling sheets of iron or steel and noted the changes made in machinery during the past 20 years this article would not be complete without reference to the attempts recently made to revolutionize the method of rolling sheets.

#### Continuous Mills.

Last year a patent was granted to William Garrett, Joliet, Ill., for a progressive process of rolling iron and steel sheets. If the process was ever given a trial the fact has not been made public, but experiments were made in an Indiana mill last year which embodied some important points of Mr. Garrett's plan. In sheet mill practice it has always been a custom to use only one pair of chilled rolls, upon which the work of molding out, running over and finishing is done. The reason given for this being that if sheets molded out through one pair of rolls are taken to another pair of rolls to complete the process of elongation, the fit or concave shape of the two pairs of rolls would not be the same unless they were turned exactly alike and were subjected to precisely the same amount of work and degree of heat. To preserve a uniform shape the rolls must each have the same treatment. If this shape is not equal buckling or dishing will result when a pack of sheets is taken from one stand of rolls to the other. If the finishing rolls are more concave in shape than the other pair the edges of the pack will elongate faster than the sides, and buckling will result, but if the conditions are contrary the middle of the pack will elongate faster than the sides, and the pack will be dished. This is the established theory of sheet iron rollers for years past, and the experiments made in Indiana seem to have proved that it is correct. A plan of the mill in which experiments were made is presented herewith, Fig. 10. The roughing mill was provided with four pair furnaces which were kept full of bars. When taken from the pair furnaces bars were passed through the sand rolls and molded out to about No. 18 gauge on one of the two pairs of chilled rolls; two roughers were employed who took turn about at the sand rolls, also two pair heaters. After being molded out the sheets were matched in threes and taken to the reheating furnaces and when ready were run over through

chilled rolls A in the finishing mill. They were then doubled and again heated, after which they were finished on chilled rolls B, and thrown off to squaring shears. The method was tried many times, and sometimes a good heat would be rolled, but the general result was "stickers," "pinched packs," "buckles" and other imperfections, and it was generally conceded that the old established theory regarding the fit of rolls was correct. It was expected that the output of the mills would be more than doubled as compared with old methods, but in this also dis-

been introduced by Carl Wittgenstein of Rudolfshutte, near Teplitz, by which means sheets about 150 feet long and No. 20 gauge are produced directly from the ingot with only one intermediate reheating, but so far the output has only reached 30 tons per day. Five stands of rolls are used and they are placed in continuous order. Nearly all the labor is performed automatically and only a few men are employed. Considering the enormous expense of the plant the output ought to be considerably over 30 tons per day to prove a paying investment. It will be noticed that sheets are only reduced to No. 20 gauge by this method. If Americans ever adopt this process they will have to use their wits and devise means for reducing sheets to much lighter gauge, as more sheets are sold lighter than No. 20 than are sold of heavier gauges.

A dozen or more different methods of rolling sheets have been heard of, but the inventors have so far failed to find the man with the money and energy to test their ideas. When that man is found we may hear of important sheet mill progress.

### The Mercantile Cruisers of Foreign Powers.

While the vulnerability of modern ocean mail steamers render them unsuitable for fighting purposes, yet their speed, carrying capacity and sea keeping qualities cause them to be generally regarded as an important adjunct to the naval force of a nation, since they are well adapted for special employment in time of war in preying on an enemy's commerce, in transporting men and supplies, in maintaining communication with detached forces, and in various other ways. The maritime powers of Europe make careful provision for the speedy arming and equipping of such vessels for public service in case of need, and most of them, with a view to the prompt utilization of the finest merchant steamers under their respective flags, have entered into formal agreements with steamship companies which are organized under their laws and the development of which has in many cases been fostered by substantial government aid in one form or another.

Although there are nearly 7000 merchant steamers under the British flag yet this enormous fleet can only furnish about 50 vessels each combining a displacement exceeding 2500 tons with an actual sea speed of not less than 16 knots. By a system of Admiralty subventions, the payment of which is in addition to the amounts earned under ocean mail contracts, the right is secured to employ some of the fastest of these steamships in the public service should the necessity arise, upon terms agreed upon beforehand. The guns being kept in readiness and the work necessary to fit the vessels for such service having been already done as far as practicable, Great Britain could within a very short time equip as armed cruisers the "Campania" and "Lucania" of the Cunard Line, the "Majestic" and "Teutonic" of the White Star Line, the "Victoria," "Britannia" and "Oceana" of the Peninsular & Oriental Steam Navigation Company, and the "Empress of India," "Empress of China" and "Empress of Japan" of the Canadian Pacific Railway Company. Besides those named a number of other steamships belonging to the same owners are held at the disposition of the Admiralty upon demand. There are also

many large and fine British merchant steamers which, though subject to no special agreement, conform to some of the Admiralty requirements in certain respects, as in their subdivision by water tight bulkheads, and these vessels form a separate list as being available for public employment in one way or another.

In Germany the Government claims the right to avail itself of the services of vessels belonging to private owners upon the outbreak of war. Of about 850 merchant steamers under the German flag there are not less than 15 each of which has a displacement of over 2500 tons and a sea speed of more than 16 knots. Foreign writers assert that provision has been made for supplying with guns and equipments at least seven of these steamers, which are said to be the "Fürst Bismarck," with an ocean speed of 20 knots, the "Normannia" and "Columbia," 19 knots, and the "Augusta Victoria," 18 knots, all belonging to the Hamburg-American Line, besides three of the fastest of the fleet belonging to the North German Lloyd, with sea speeds of 18 and 19 knots. The price to be paid for these ships, as well as for others, should they be pressed into the public service, has been fixed in advance by boards composed of representatives of the Government and of the owners. Officers and men of the reserves are in readiness, and upon the receipt of their war orders those assigned to each vessel would proceed at once to the point where the guns and equipment of their vessel are stored and enter upon the duties assigned them. The battery provided for each of the German merchant cruisers is said to consist of eight 5.9-inch and four 4.9-inch breech loading rifles, four rapid fire guns and 14 revolving cannon of smaller caliber.

In France the names of the merchant steamers which would be employed as armed cruisers are carefully guarded, as are the agreements understood to have been executed regarding them between the Government and their owners. It is known, however, that they belong to the two great subsidized steamship companies, the Compagnie Générale Transatlantique and the Messageries Maritimes. There are about 530 seagoing steamers under the French flag, of which 13, all belonging to the two companies named, have a displacement of at least 2500 tons each and an actual speed of not less than 16 knots. Statements have been published in foreign journals to the effect that batteries have been provided for the "Touraine," which has shown an average speed of fully 19 knots on several transatlantic passages; the "Gascogne," "Burgogne" and "Champagne," all credited with speeds of between 17 and 18 knots; the "Normandie," a somewhat slower vessel, and four new steamers engaged in passenger and mail service between France and the East, these being the "Australien," "Polynésien," "Armand Béhic" and "Ville de la Ciotat," classed as 17-knot ships. The battery assigned them is said to be the same in all cases, seven 5.5-inch guns and about 20 smaller pieces. Careful study has been given to the question of augmenting the force ordinarily on board with officers and men for special naval duties, and each vessel has a rendezvous station to which she would repair promptly to be fitted out if required. All steamers employed under postal contracts are required to have the necessary fittings for receiving a battery and special premiums are given for speed. Under the law of 1881

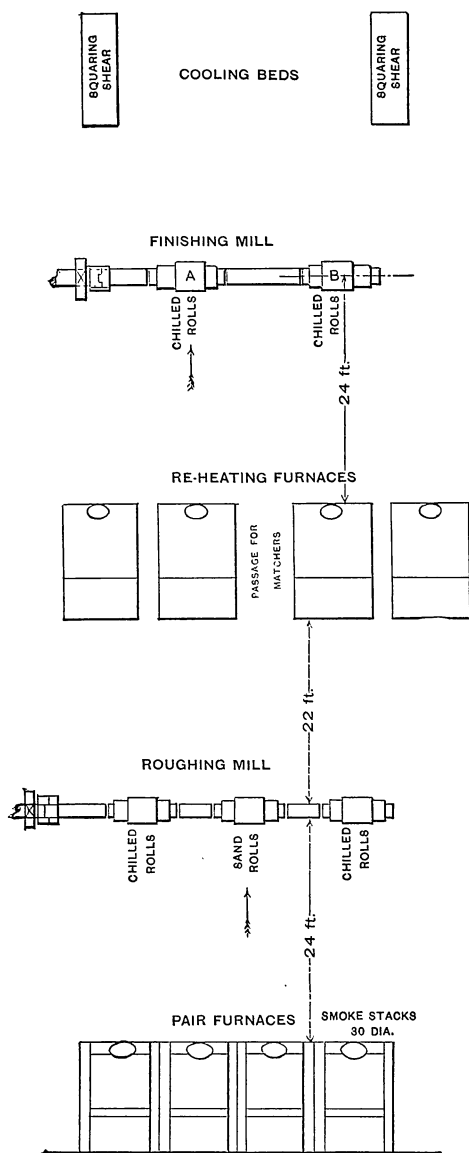


Fig. 10.—Plan of Experimental Continuous Sheet Mill.

appointment was met and the plan was finally abandoned. The mills have since been changed to old style, and old methods continue to hold full sway.

If all other conditions and mechanical possibilities had been favorable the test of this plan would have resulted in failure, for the reason that there was a lack of concerted action on the part of the workmen and an evident opposition to the innovation. This indifference on the part of the men was apparent even to an outsider, and was in general line with their attitude toward all improvement that is liable to increase tonnage and reduce the number of men required to do a given quantity of work.

Since this article was written news comes from Bohemia that a method has

authorizing bounties for French vessels not employed on subsidized routes, an increased navigation bounty was provided for steamers built to meet naval requirements, but the inducement offered was not great enough and the results were meager, only two steamers having been built in accordance with the special requirements. In the new bounty law enacted in January, 1893, the premium offered in the case of steamers built on plans approved by the Minister of Marine was considerably increased.

Russia, with a seagoing steam merchant marine comprising about 250 vessels, has nine steamers each of over 2500 tons displacement and having a greater speed than 16 knots. The list of merchant cruisers designated as available for armed service includes also some smaller and slower vessels, the total number at present being 15, exclusive of vessels not yet completed. All of them belong to the Black Sea Company or to the Volunteer Fleet, both subsidized. The former own the "Alexis" and the "Constantine," both

rifles, besides a secondary battery of smaller guns. Eleven new steamers are building or have been ordered for the Volunteer Fleet. They are to show a trial speed of 20 knots, and will probably be put in complete readiness for mounting batteries similar to those assigned the "Orel" and "Saratov."

While Italy, with about 230 seagoing steamers, has but one which combines a displacement of over 2500 tons with a seaspeed of over 16 knots, she has eight merchant steamers borne on her list of mercantile cruisers for the arming of which special provision has been made. They belong to two companies, the Navigazione Generale Italiana, better known as the Florio Rubattino Line, which is subsidized by the Italian Government, and the Veloce Company. Five of these vessels are classed as available for service as armed cruisers, and the remaining three are regarded as suitable for employment as armed dispatch vessels. The battery assigned to each of the cruisers consists of two 4.7-inch guns and four machine guns. The dispatch vessels

full attendance at the December meeting, when an interesting paper on "Furnace vs Foundry Practice," by E. A. Wheeler of the Wheeler Furnace Company, Sharon, Pa., will be read. The association will then meet as usual in Temple Court Building, Chicago, in the rooms of the Detroit Foundry Equipment Company.

### Introducing Feed Water Into Boilers.

BY J. M. SEARLE, GRAND RIVERS, KY.

In *The Iron Age* of October 5, page 608, you produce drawings of two modern methods of introducing feed water into marine boilers.

It may be of interest to some of your readers who are paying extravagant bills for fuel and repairs to learn that extraordinary economy, both in the use of fuel and repairs, has been obtained by the adoption of a feed water device for stationary boilers which is in some respects similar to the one described in *The Iron Age* of the 5th ult.

I herewith inclose a sketch of this device, which was in use at the Dickerson Mine, N. J., in 1886, and until that mine closed down in 1892.

The cold feed water is introduced into pipe B, through a  $\frac{1}{4}$ -inch nozzle, so arranged as to induce a current of hot water down from the bottom of the boiler through pipe A, and at the same time force this current forward to the mud drum.

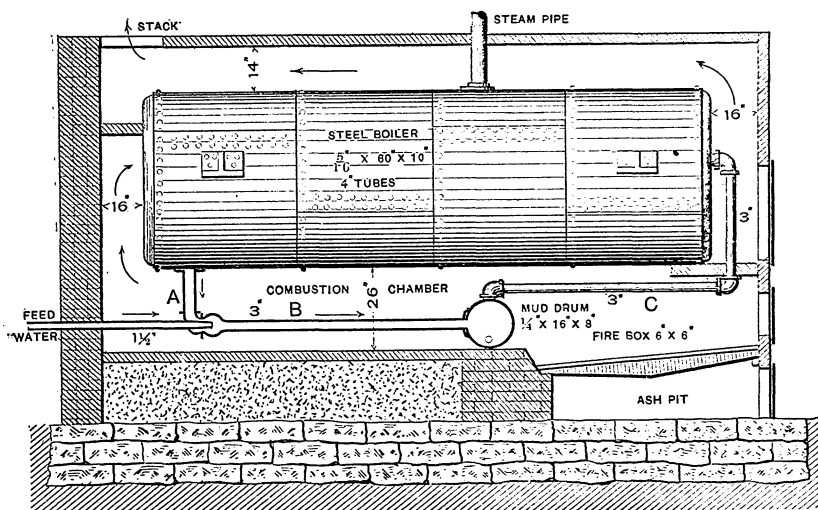
While passing to the mud drum the hot and cold water are thoroughly mixed, and so much lowered in temperature that the sediment is precipitated and allowed to settle in the mud drum, from which it may be blown off at pleasure—say once every 24 hours.

The feed water passes to the boiler through the pipe C, entering the boiler above the upper row of tubes.

To insure the best economy it is necessary to construct the cylinder of the mud drum of one piece of good metal, place the seam opposite the fire and below the inlet pipe B, raise the outlet end C 1 inch higher to insure a full drum of water at all times and always connect the outlet pipe C at the highest point. The first four boilers upon which this device was placed were in constant service for five months, including nights and Sundays, before an examination was made of their interior. Upon opening each of them they were found to be absolutely without internal scale or deposit of any kind.

There was no sign of repairs necessary and they were very economical in the use of fuel. There is a constant circulation of water in the boiler, "even when they are not being fed," owing to the location of pipe C. The device is simple, economical and easily applied to any stationary boiler, and as it is not patented, is, of course, public plunder.

[Mr. Searle placed the following note on the drawing he sent: Four of these boilers easily supplied the steam for a 30 x 48 inch pumping engine, a 22 x 30 inch hoisting engine and a 12 x 18 inch air compressor. Water pumped equaled 125 gallons per minute; ore hoisted equaled 100 to 150 tons per day; ore and water raised 850 feet to top of shaft; 90 tons of pea coal (anthracite) used each month; natural draft.]



INTRODUCING FEED WATER INTO BOILERS.

credited with speed of 18 knots. The Volunteer Fleet, originally organized by popular subscriptions with a view to strengthening the resources of the Government, is practically a part of the public armed force, although belonging to private owners and engaged in trade between Odessa and Vladivostok. Its vessels are used largely to transport men and supplies for the Government, and the officers and crews are drawn from the regular navy. It is indirectly controlled by the Russian Admiralty, and new vessels recently added to it or now building have been designed primarily with a view to their rendering efficient service as armed cruisers, the employment giving them in time of peace being regarded as of secondary importance. In this respect the conditions which govern the construction of merchant steamers for service under other flags are exactly reversed in the case of the Russian Volunteer Fleet, and the "Orel" and "Saratov," the former launched in 1889 and the latter in 1891 for service in this fleet of trading vessels, are practically naval cruisers in many respects. The "Orel" has a displacement of 6000 tons and the "Saratov" of 8500 tons. The older one can make 18 knots and the other 19.5 knots. Each of them is fitted to carry one 8-inch and six 6-inch breech loading

would carry a lighter battery. The Italian system of shipping bounties, like the French, makes provision for an increased bounty in the case of vessels built to meet naval requirements.

The American Exhibitors' Agency Company, 218 La Salle street, Chicago, have been appointed commissioners and official representatives for the forthcoming California Midwinter International Exposition, to be held in San Francisco from January 1 to June 30, 1894. They will secure space for exhibitors and take full charge of exhibits for the term of the fair at a fixed schedule of rates based on their weight and bulk. The president of the company is A. C. Oldenburg, commissioner for Canada, and the manager is H. B. Hardt. Exhibitors are charged for space at the rate of \$2 per square foot in buildings, and \$1 per square foot in the grounds. The minimum space allowed an exhibitor is 10 square feet.

The Executive Committee of the Western Foundrymen's Association have decided not to hold a meeting of the association in November, but to hold the next regular meeting on the third Wednesday evening in December. It is hoped that this action will result in a

## San Francisco News.

Among the events of the past two weeks must undoubtedly be placed first in order the launching of the great battle ship "Oregon." Heretofore we built and launched swift cruisers, coast defense ships, &c., but not till the present year have we done anything like building a great battle ship. The "Oregon," which is as fine a vessel as was ever turned out in any navy yard in the world, and which is a triumph of modern steel shipbuilding, was launched from the Union Iron Works shipbuilding yards, at the Potrero, on Thursday, October 26. There were fully 50,000 people in attendance to witness the event, which reflected so much credit on California shipbuilding. Every steel plate, her guns, &c., have been or are to be forged in the East. They were put together here, but there is a great deal of work in them and it seems to many that there should be, as has been proposed, a gun foundry on this coast and an establishment where those great plates of steel should be forged. This would add immensely to the industrial importance of San Francisco and of the coast. If any reasonable proportion of the work of Government shipbuilding were to be given out here it would pay the Scotts or a corporation to put up a proper establishment in this city. Various proposals have been made to this end and an attempt has been made to establish a corporation to do this, but as yet the endeavor has not met with any marked success. The capital of the proposed establishments would mount up into the neighborhood of \$5,000,000 to \$6,000,000. Accompanying these have been proposals to establish furnaces for the production of iron and steel from California, Washington and Mexican ores, but as yet nothing has come of them. Doubtless the financial complications of the past few months, which have borne with considerable, if not visible, severity on our capitalists and business men, may be the cause of the quiet that has been maintained with regard to these projects.

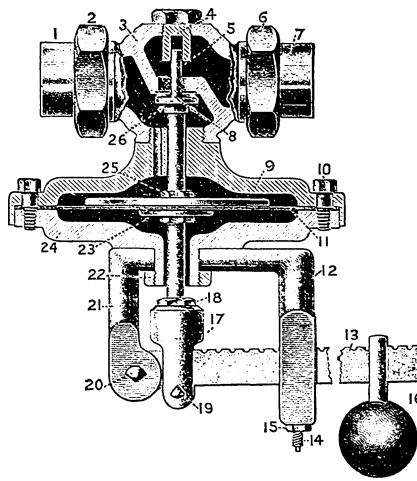
And here I may say that the merchants, jobbers and retailers doing business in iron, steel and hardware have borne the pressure remarkably well. Collections have been pretty bad with them, as with all others, but as a class they have made no sign of having been seriously incommoded, except, indeed, where the discharge of employees has told a tale of financial stress. Some other lines of business have not escaped so well, especially the lumber business. The hardware and iron and steel houses are, as a rule, institutions of great capital and have always been very conservative, so that when the day of trouble comes they are not found unprepared. The volume of their sales has shrunk very largely; on the whole, we should say 10 per cent. when compared with former seasons. In particular instances the shrinkage has been much greater. During the past two weeks there has been a fair amount of business, sufficient to give us encouragement of better things to come. We are still selling close to the limit of cost, and, no doubt, will continue to do so for the rest of the present year.

A general depression exists in insurance circles in this country, and many very unsatisfactory statements are looked for in January. Experts assert that the fire underwriting outlook is far from cheerful.

## The Mason Vacuum Regulating Valve.

This valve, of which we show a sectional view, is designed to regulate and maintain an even vacuum irrespective of the suction force made by the pump. It is to a vacuum what a reducing valve is to steam. Where a large number of vacuum chambers are attached to one pump one of these valves may be placed on the outlet to each chamber and a separate amount of vacuum be kept on each one by the use of this valve.

The coupling 1 attaches to the pipe leading to the vacuum chamber; the coupling 7 to the pipe leading to the pump. Suppose, for instance, that it is required to keep a vacuum of 20 inches. When it exceeds that amount the suction passing through the small hole from the upper to the lower or diaphragm chamber will exhaust the air in that chamber sufficiently to pull up the diaphragm 23, which is weighted, and in so doing will close the valve 8, communicating with the passage to the steam pump. That vacuum—namely, 20—will be maintained until it drops below that amount, when the weight 16, not having sufficient vacuum in the



The Mason Vacuum Regulating Valve.

chamber 25 to sustain it, will drop, opening the valve 8 and allowing the pump to bring vacuum up to the normal. The weight 16 can be placed at different points along the lever 13 in order to attain any desired amount of vacuum. The yoke 12 can be turned around in whatever direction it may be wished to have the lever 13 point. This valve was manufactured by the Mason Regulator Company of Boston at the request of a large Canadian sugar refinery.

## The Iron and Steel Roofing Industry.

In looking backward over the conditions that have existed in the iron and steel trade during the past six months it may be a source of wonder to many that those mills devoted to the manufacture of sheets of the lighter gauges have been running steadily notwithstanding the hue and cry about hard times and the unparalleled, complicated labor troubles which have claimed so much attention locally and generally. In searching for reasons why sheet mill operators should be the favored few the main causes soon become apparent. Building has not been interrupted to any great extent during this year and the demands of iron roofers and cornicemen for black and galvanized sheets have been quite lively compared with activity in other

branches of the trade. It is these demands which are the life of the sheet iron trade and their importance is probably only thoroughly understood by those having a direct connection with the business.

Without taking into consideration the quantity of galvanized sheets consumed by manufacturers of cornices, skylights, ornaments, conductor pipe, &c., figures regarding quantities of sheets annually consumed by manufacturers of iron and steel roofing prepared ready to lay will probably surprise the uninitiated.

Twelve years ago the sale of iron and steel roofing and siding, such as corrugated, rolled roofing, standing seam, V-crimp, beaded siding and the innumerable variety represented in the hundreds of patents granted to roofing men, had to be pushed hard, and traveling men were obliged to spend their time telling customers in the best and most effective language they could command the virtues of the new material and instructing how it should be applied. The order of things is now changed. Good advertising does nearly all the work of selling, and as the quality is necessarily nearly uniform, the stock used being standard grade, the seller who names the lowest price and best terms usually gets the orders.

The State of Ohio produces fully one-half of the total quantity of iron and steel roofing sold in the United States. As nearly as can be ascertained, Cincinnati was the first important seat of the industry and it still heads the list as a producing center. The first business of the kind was established about 1868, and up to 1880 there were some few additions made yearly to the number of manufacturers. It was a hard struggle against prejudice, and not more than 15,000 tons of sheets were consumed for the purpose during 1880. After this time, however, the material found favor and a wonderful development commenced. It has increased year by year and there are now about 75 concerns engaged in the business, East and West. A conservative estimate of the annual consumption of iron and steel sheets for these purposes is about 100,000 tons. The surface which this enormous quantity of material would cover may be easily estimated, basing the weight at 1 pound per square foot when laid. To give an idea how the above figures are arrived at, a table is printed below showing the approximate tonnage of 59 manufacturers:

	Number of manufacturers.	Tons.
Ohio.....	27	55,000
Illinois.....	8	10,000
Pennsylvania.....	5	4,000
Missouri.....	3	8,000
West Virginia.....	3	8,000
New York.....	2	2,500
Indiana.....	2	1,000
Minnesota.....	2	2,000
Michigan.....	2	1,000
Tennessee.....	1	1,250
New Jersey.....	1	500
Massachusetts.....	1	500
Alabama.....	1	7.0
Kentucky.....	1	2,000
Small manufacturers..	..	3,500
Totals.....	59	100,000

It would be interesting to illustrate how this enormous quantity of material is handled, but as the machinery used for the purpose is mostly built to special designs, and as details of economical and effective manufacture are closely guarded, information on the subject is not considered due to the trade generally. It is sufficient to say that vast improvements have been made, both in the power of producing quantity and good quality, and the low prices at

which iron and steel roofing is now sold are due to energy and enterprise spent in this direction. The favor into which this material has grown is illustrated by the figures presented. In Australia and other British colonies the use of

### The World's Fair Diploma.

Through the courtesy of the *Inland Printer* of Chicago, we print herewith a *fac-simile* of the diploma granted by

award at the World's Fair will receive a medal and a diploma. There is only one medal, bronze. All receive the same. It conveys no statement as to rank or relative quality of the exhibit. The only distinction there is lies in the



THE WORLD'S FAIR DIPLOMA.

iron and steel for roofing purposes has been an established industry for a great many years, but the methods of applying it are not so effective as in the United States. American ingenuity has developed the industry into a distinctive business, and the sales have increased during about 12 years from \$1,000,000 to \$6,000,000 per annum.

the World's Fair, the accepted design being that of Will H. Low, New York. There seems to be considerable misunderstanding concerning the awards made. Announcements that a manufacturer has received the "highest award," the "first prize," &c., are not justified except under special circumstances. Every exhibitor obtaining an

wording of the award which is engrossed on the diploma. This is the finding of the jury. If the claims for superiority allowed by the jury, as forming the basis upon which the diploma has been granted, are clearly greater than those of any competitor, the manufacturer may be justly entitled to the assertion that he has received the

highest award. In view of the large number of awards granted, successful exhibitors will closely study the verdict of the jury in their own case and in that of rivals.

## Washington News.

(From our Special Correspondent.)

WASHINGTON, D. C., November 14, 1893.

The Committee on Ways and Means, which started out apparently with plain sailing, is beginning to experience some of the symptoms of very serious disagreements in matters of detail.

It is a significant fact that the opposition to the programme of revision on the line of free raw material and a horizontal scaling down of duties comes from an unexpected quarter. For instance, Texas and Ohio are against free wool. Alabama, West Virginia, Maryland, Pennsylvania and New York are against free coal. Alabama, Virginia, Pennsylvania and New York are opposed to free iron ore.

There is a general clashing of productive interests and partisan policy now confronts the committee. The majority is restive, but not diverted under these protests from their home States.

If the conversations of Chairman Wilson of West Virginia, Turner of Georgia, McMillin of Tennessee, Breckenridge of Arkansas, Montgomery of Kentucky and Bynum of Indiana are put into practice there will be no change of plans, but the policy already foreshadowed in *The Iron Age* will be carried out.

The three conservative members of the majority—Cochran of New York, Whiting of Michigan and Stevens of Massachusetts, will doubtless yield to the work of the majority, of their colleagues, although it would be in their power to repeal any unfavorable legislation, according to their ideas, if they should vote with the minority.

This, however, they are not likely to do. Therefore the bill will be reported as the majority frames it. A conflict may spring up in the House, but it is not improbable that in the Senate the House bill will be thoroughly sifted and made to conform to the conservative view of the tariff even for revenue only.

As far as the elections have been considered, Senator McMillin said to the correspondent of *The Iron Age*: "We regard the national election of 1892 as the expression of the will of the people in reference to Tariff matters. The recent elections were on State issues and candidates, and not national. We must carry out the platform on which we were elected. On this line we are willing to take the judgment of the people."

It is evident that the Congressional campaign next year will be fought almost wholly on the tariff, with some local silver interests thrown in.

The line the committee is now operating upon is all the free raw materials reported or passed by the last House in the tentative bills, with pig iron at \$5 a ton, steel rails at \$8 a ton, tin and terne plate 1 cent a pound and a cut ranging from 25 to 40 per cent. on articles in the metal schedule. An effort is being made to get the bill ready for printing next week.

Commodore Hichborn, Chief Constructor of the Navy, speaking of the sensational allegations about the "New York" and "Montgomery," said to-

day: "There is just enough in these stories to give a color of veracity, but to say that the statements as made are true would be decidedly untrue. There is nothing in the alleged defects in the vessels named or any other vessels of Department designs, if these agitators should see fit to lug them in also, which cannot be remedied by simply going back to the calculations upon which the designs were based. Every vessel of the United States Navy will carry all the weights, armor, armament, supplies, coal and everything else for which she was designed. But a vessel constructed for an armament of 6, 8 and 10 inch guns with the auxiliary batteries, and then to mount her with 8, 10 and 12 inch guns, would simply be like building a house with a foundation for two stories and putting on four. Under ordinary conditions the foundations might hold the weight, but we design ships upon scientific calculations; not to meet smooth water conditions, but the roughest weather and the severest strain of battle. When you increase the height or weights on top, the center of gravity rises.

"We are now making heavier guns than when some of the earlier ships were built. It would be folly to attempt to mount them with guns of greater power than their class. The nicety of calculation covers weight of hull, machinery, batteries, munitions, fuel and stores. The dimensions of the hull and draft are adapted to these requirements, and they are all correct for the weights originally intended.

"The best evidence," said the Commodore, "of the hollowness of this outcry is the charge that the draft of the 'New York' was miscalculated, and that she cannot enter any of the docks of the Government. The latter part is true, and the first is false. The statement should have read: 'The Government of the United States does not possess a dry dock which can suitably accommodate any of the battle ships or large armored cruisers.' The 'New York' can get into the larger docks now available, by taking out some of her heavy guns. The subject of dry docks is one which must be met in order to keep pace with the great ships we are now building. We were not in position to build such ships when our present dock accommodations were built.

"The only serious thing about this agitation is the danger that it may create an unfavorable impression toward the new navy. There is no danger of the ships being top heavy if mounted as designed. This fact is acknowledged by the naval experts of the world, that the ships of the new navy of the United States are not excelled by any other class anywhere. We will match the 'New York,' 'Columbia,' 'Massachusetts,' 'Indiana,' 'Illinois' or 'Oregon' against any of them. We are not afraid of scrutiny nor of criticism, but we would prefer to have it based upon facts and not inferences upon false premises."

Secretary Herbert has reached that part in the preparation of his annual report in which the important question of additional ships to be asked for from Congress must be decided. The Secretary when chairman of the Committee on Naval Affairs of the House always entertained liberal views on the subject of new ships. He is now in consultation with the bureau chiefs on this subject. His disposition is to recommend two additional battle ships and a liberal number of torpedo boats. The torpedo branch of the navy has made

very satisfactory progress. The Secretary accordingly favors the construction of a fleet of these destructive machines according to the latest and most approved designs.

In regard to the battle ships, the Secretary's idea is that we are not sufficiently well equipped for aggressive or defensive naval purposes with actual stand up and fight ships. The fleet of cruisers is sufficient at present for destroying commerce and eluding the enemy's fleet. The disposition among Senators and Representatives is generally favorable to a liberal policy. Their confidence, also, in the judgment of Secretary Herbert will also go a great way toward the carrying out of his recommendations.

## Russian Manganese Ore.

Steel manufacturers and others interested in the use of manganese should peruse the Foreign Office Report, No. 307, by P. Stevens of Batoum, on the "Manganese Ore Industry of Sharopan." The annual export of this ore is about 150,000 tons from the district in question, about half of it being sent to Great Britain. Lately, some has been sent to the United States. The mines extend over an area of some 13½ square miles, and are estimated to contain 66,500,000 tons of the ore, so that at the present rate of export the supply ought to last some 200 years. That period will be shortened, however, if the exports increase, as they seem likely to do, the estimate for this year being 322,000 tons. The mines are situated in a very mountainous district, and the ore had been removed by hand, and carried by carts; but a railway is now in progress, and will be completed before long. Mr. Stevens puts down the cost of the ore delivered at Poti or Batoum at 8½ pence per poond of 36 pounds, or equal to \$10.94 per ton of 50 per cent. metallic contents, equivalent to 20 cents per unit and ton, f.o.b. Poti. The average freight from the Black Sea to the United Kingdom is \$3 per ton. The standard quality of the Chiatour ore is 54 to 55 per cent. of metallic contents, or 83 to 87 of peroxide when dried at 212° F., and about 0.16 per cent. of phosphorus, but Mr. Stevens says some of the ore is mixed with inferior ore, and so brought down to 50 per cent. Mr. Stevens recommends that buyers should give the preference to Government samplers and analysts holding official positions rather than to private samplers, who are apt to select the heavier pieces of ore for the use of the analysts.

In a few weeks the Cambridge Corrugating Company, Cambridge, Ohio, will place on the market Stanley's patent felt lined iron and steel roofing. Sheets treated in this manner are said to be impervious to the action of moisture arising from the insides of buildings, and this company claim to be able to manufacture the material at a slight increase over the cost of plain roofing.

The 9585 men who enlisted in the United States army last year represented some 200 different trades or occupations, including lawyers, doctors, chemists, school teachers, civil engineers and others from the educated professions. The large majority, however, were drawn from the laboring and mechanical occupations.

## An 1893 Bessemer Steel Works.

[With Supplement.]

During the last four years each year has seen the completion and starting of a new Bessemer steel works—*i. e.*, Duquesne Steel Works, 1889; Jones & Laughlins, Limited, 1890; Maryland Steel Company, 1891; Shenango Valley Steel Company, 1892. The close of 1893 witnesses the completion of another works in the plant of the National Tube Works Company, at McKeesport. Each one of the above works is fairly typical of the "state of the art" of the year in which it was built.

An examination of the general plans of the different works shows no radical departure from the accepted lines, with

same company, and from which hot metal will eventually be taken to the rolling mills of the same company. The products of the steel works will be chiefly slabs for rolling into skelp, the present capacity of the National Tube Works being such that under ordinary conditions the entire product of the works would be consumed.

The works were designed by the Pittsburgh Iron & Steel Engineering Company and were contracted for in their entirety July 11, 1892, and have been carried forward under the personal supervision of General Manager Jno. T. Wilcox and Chief Engineer Saml. Forter. The initial blow will be made in November. The site was an exceptionally difficult one to build upon, the yard level requiring to be filled over 20 feet over the greater part of the 11 acres, and the heaviest machinery is located where a deep swamp

case same is found desirable. The charging floor of the cupola is 51 feet above the general level, the hoist consisting of a pair of 10 x 12 Crane furnace hoisting engines, with two cages, 7 feet 6 inches by 9 feet.

A 35-inch blooming mill is provided, driven by a pair of 36 x 48 engines, all of Mackintosh, Hemphill & Co.'s build. The gearing is respectively 4 feet and 8 feet diameter, 8 inches pitch, 30 inches face, of cast steel. The mill will give a range of sizes from 22-inch slabs down to 4 x 4. The blooming shears are located 100 feet from the mill, and midway between the mill and shears is located an auxiliary hydraulic shear, which is used to cut off crop ends and also cut the billet into two or more pieces, thus enabling the main shears to cut several pieces at once.

The blowing engines consist of a pair of horizontal compound tandem en-

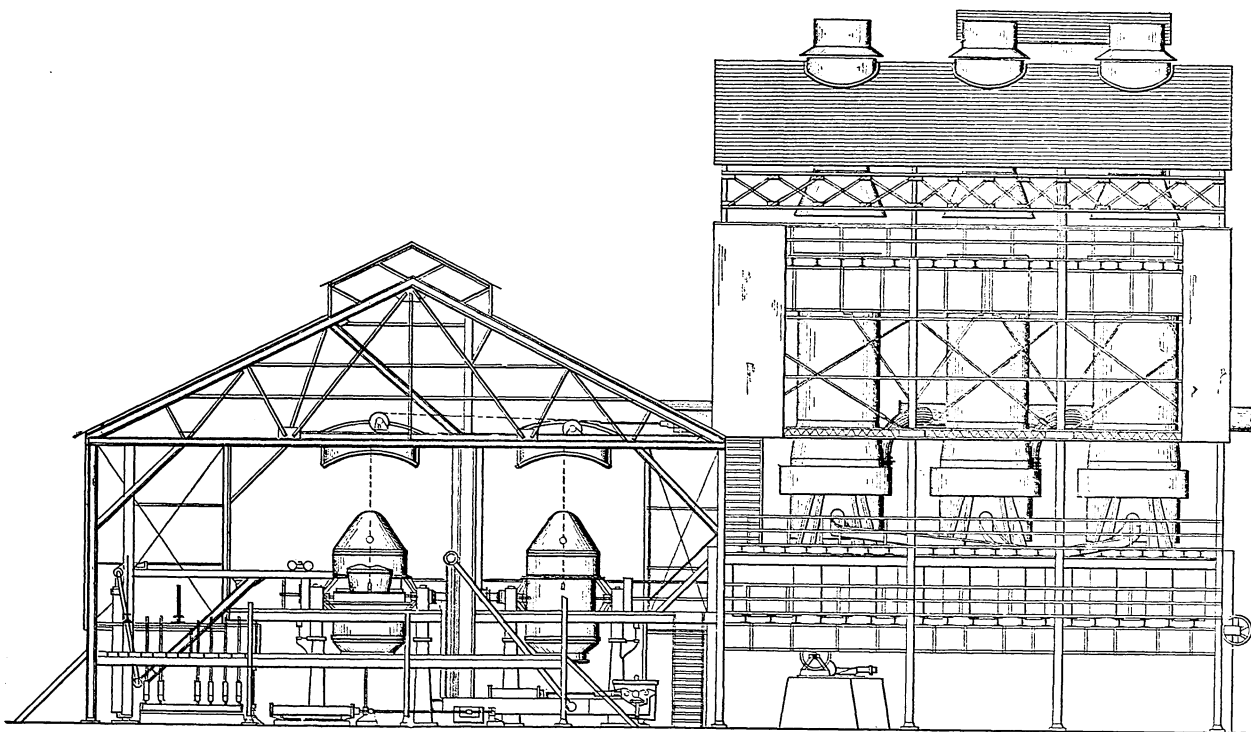


Fig. 1.—Converting and Cupola House.

## AN 1893 BESSEMER STEEL WORKS.

the exception of the plant of the Maryland Steel Company, in which case the method of adapting the converting house to cast upon cars was boldly followed.

Each of the above works, however, shows variations in detail, which, while in themselves not amounting to much, still in the aggregate would show that the works built to-day have many points of difference from the ones built six years ago. The tendency has been toward quicker handling, greater reductions and higher speeds. That corresponding economies have resulted is evidenced by the fact that \$6.50 per ton fairly represents the difference between the price of pig and billets to-day.

The new works of the National Tube Works Company are located on the Monongahela River, 12 miles above Pittsburgh. They are connected with three separate lines of railways—*i. e.*, P. R. R., B. & O. and P. & L. E.—thus having facilities for shipping that are unsurpassed. The works are immediately adjacent to the Monongahela furnaces, which are operated by the

or morass existed, requiring many thousand 40 foot piles to be driven to reach gravel. The system of car casting, vertical stripping, soaking pit furnaces and electric traveling charging cranes has been followed. The plant essentially consists of two 8-ton vessels mounted side by side and blowing to the rear. They are placed at an elevation of 14 feet (measured to center of trunnion) above yard level, enabling a *débris* car to be run under the nose of the vessel when tipped. The cupola house is situated on one side of the converting house, the hot metal ladle being moved by stationary engines. Three cupolas are provided, each 10 feet shell and 27 feet from mantel plate to charging floor; the cupolas have three rows of tuyeres and have continuous wind boxes. A feature of the cupolas is that they end with the charging floor; what extends above that point is a hood or spark stack only, leaving a clear opening entirely around the cupola for charging purposes. All arrangements are made to use melted metal direct from the blast furnace in

gines, high pressure steam cylinders, 28 inches diameter; low pressure, 50 inches diameter; blowing cylinders, 54 inches diameter; all 60 inches stroke. The steam cylinders are fitted with piston valves having adjustable cut off, and the blowing cylinder has positive inlet valves. The pair of engines are provided with one fly wheel 25 feet diameter and 25 tons weight. An independent Worthington air pump and condenser serves both engines. The ordinary wind pressure is to be 25 pounds. The engines were designed and built by Mackintosh, Hemphill & Co., and are beautiful pieces of massive engineering, the total weight of the pair of engines being about 370 tons. Steam is supplied by 2500 horse power Babcock & Wilcox boilers arranged in five batteries. A steel stack 11 feet by 6 inches in the clear by 180 feet high serves all the boilers. Roney stokers are used, and all the steaming coal is unloaded upon a platform on a level with the charging hopper of the stoker. The boilers are intended to carry regularly 140 pounds of steam. The feed

pumps are controlled by an auxiliary accumulator.

The hydraulic system is supplied by three Wilson-Snyder compound duplex outside packed plunger pumps, 16-inch high pressure cylinders, 23-inch low pressure,  $7\frac{1}{2}$  inch water plungers, all 24 inches stroke. The accumulator is 18-inch plunger, 8-foot stroke, and is loaded to 450 pounds. The cupolas are served

ing furnaces are fitted with disk reversing valves, and each furnace has its own stack 4 feet in the clear by 80 feet high. The furnaces are built entirely of Mt. Savage brick.

The gas plant consists of six circular producers 8 feet 6 inches diameter, 14 feet high. A feature of the producers is the absence of any grate bars, the burning coal resting directly upon an

They are 55 feet span, and are intended to handle 5-ton loads at very quick speeds, hoisting and lowering at 100 feet per minute, and having a travel of 300 feet per minute. They are fitted with an electric tong releasing device. Covering the blooming mill and reversing engines is a 20-ton traveling crane of the Morgan Engineering Company's build, 47 feet span.

It will be noted from the plan that the grouping of the buildings is very convenient for handling of steel during its various states of manufacture. The cupola house is convenient to the blast furnaces, and the ingots move in straight lines to the heating furnace building. The shears are on the river side of the works, where there is ample room for any arrangement of shipping tracks that may be desired. The buildings are all of iron except the engine, pump and bottom houses, which are of brick. The various buildings, as well as all structural work, converters, ladles, &c., were furnished by Riter & Conley. The buildings are of the following dimensions: Cupola house, 42 feet 6 inches x 54 feet; converting house, 58 x 68 feet; heating furnace building, 58 x 125 feet; blooming mill, 50 x 95 feet; blooming mill, 45 x 181 feet; engine house, 47 feet 9 inches x 157 feet 9 inches; bottom house, 50 feet 9 inches x 98 feet; mixing shed, 55 x 54 feet; pump house, 36 feet 3 inches diameter.

The works represent the most advanced and progressive views on the subject of Bessemer construction, and no expense has been spared to embrace in them all features that tend to economies. The executive officers of the National Tube Works Company, under whose direct personal supervision the works were constructed, are: Wm. B. Schiller, manager; Taylor Allderice, superintendent; Mr. Schultz, master mechanic.

The first decision of the State Board of Arbitration of Ohio has been promulgated by Secretary Joseph Bishop in the matter of the difference between the Forsythe Coal Company and the employees thereof. The company appeared by counsel before the board, but denied its jurisdiction. All differences had been settled amicably, except the refusal to employ two miners who were officials of the local union. It appearing that there was no good reason for this, these officials having done nothing outside their duty to their principals, the board recommended their reinstatement. This the company refused, and the board, exercising the functions conferred by sections 5 and 14 of the Arbitration law, publicly declares "that the blame for the continuance of this strike lies at the door of the Forsythe Coal Company."

At Harrisburg, Pa., on the 10th inst., Judge McPherson delivered an opinion in which he holds the Hecla Coke Company of Pittsburgh liable to taxation on their capital stock invested in mining leases and improvements and in dwelling for employees, and exempts their capital stock invested in the manufacture of coke, following a recent decision of the Supreme Court in another case involving a like principle.

Prices of California cereals have of late been the lowest ever known on the Pacific Coast, and over two-thirds of the surplus wheat for export is still being held in the State, on the chance of a rise.

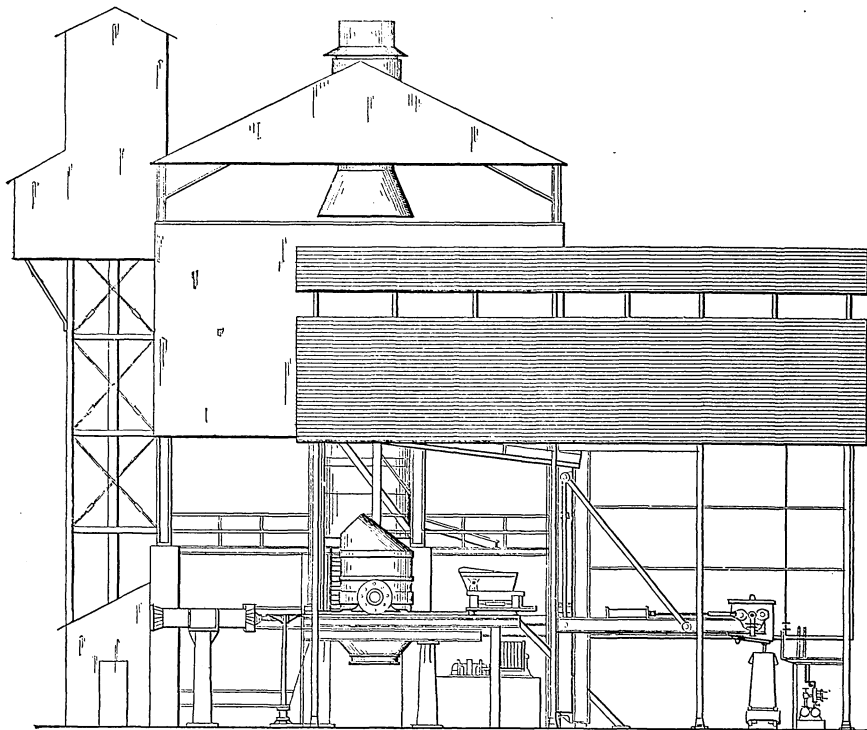


Fig. 2.—Converting House.

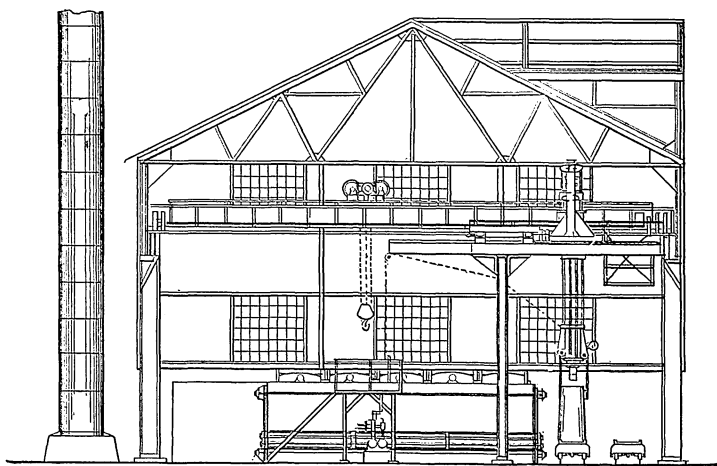
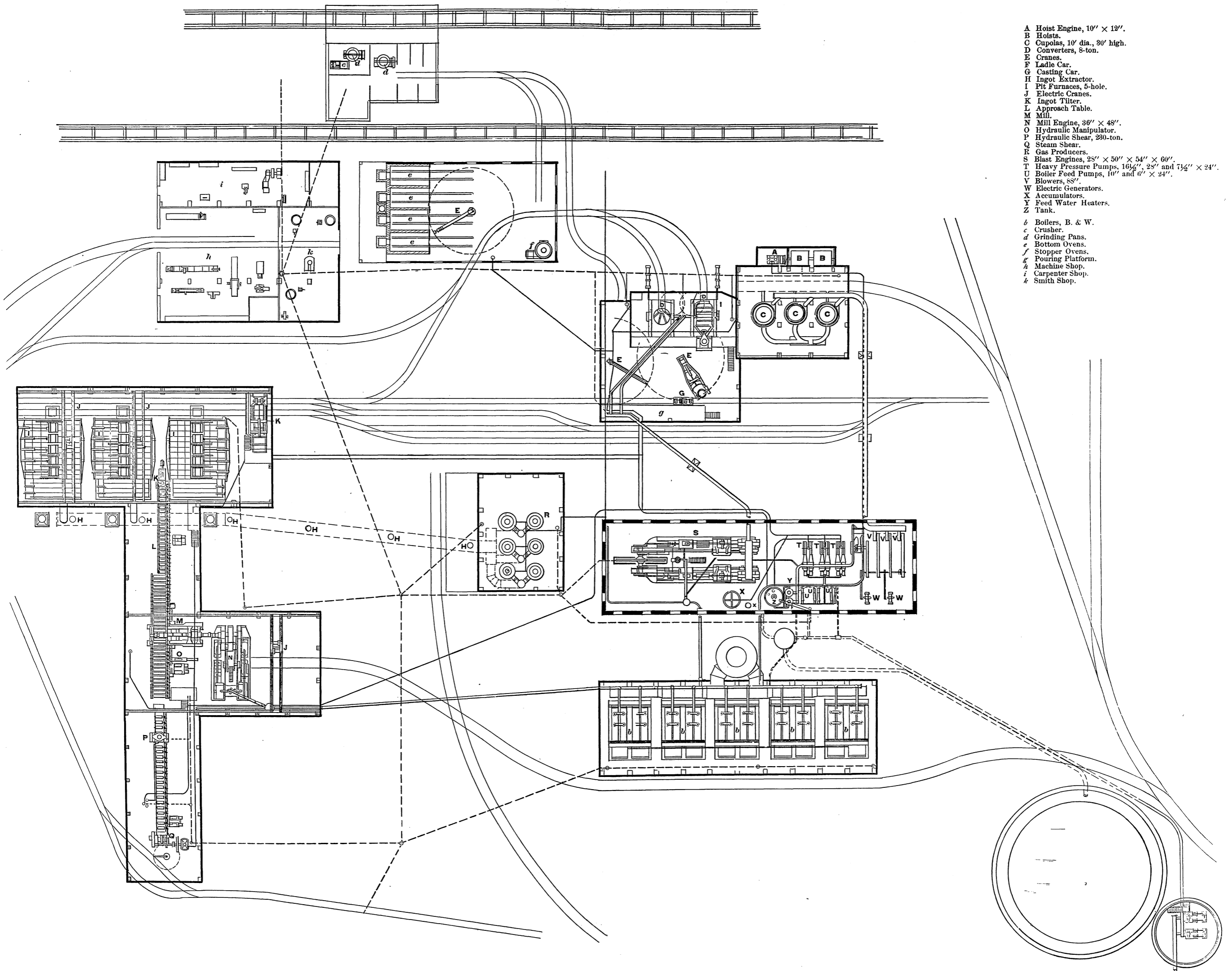


Fig. 3.—Furnace Building.

#### AN 1893 BESSEMER STEEL WORKS.

with three 88-inch Boston pressure blowers, the shells being made of plate steel. The electric power is furnished by two 40 horse-power, 250-volt, Westinghouse generators, the fans and dynamos being driven by a 250 horse-power Ball & Wood compound engine. Three five-hole soaking pit furnaces are provided, each hole being 4 x 4 feet. Owing to occasional high water in the river, it was compulsory to have the top of the heating furnaces 8 feet 6 inches above the mill level. Each hole has a cover moved by a hydraulic cylinder, all of which are operated from one point. The heat-

ash bed. The gas mains are all under ground, but are steel tubes, brick lined, the principal main being 6 feet 3 inches shell, lined with  $4\frac{1}{2}$  inch brick, and made of  $\frac{1}{2}$ -inch steel. The bottom house is provided with four large drying ovens and a stopper oven, the bottoms being handled by a hydraulic crane. The mixing house is equipped with one large Gates crusher and two 7 foot pans (wet and dry), the stock being handled by elevators. The soaking pit furnaces are charged and drawn by two electric traveling cranes, built by the Shaw Electric Crane Company.



BESSEMER PLANT OF THE NATIONAL TUBE WORKS COMPANY, McKEESPORT, PA.

Designed and Built by THE PITTSBURGH IRON & STEEL ENGINEERING COMPANY.



## THE WEEK.

The Howell torpedo tests at the Newport trial station have been brought to a close. About 80 tests, of the most severe character, have been made in all, and, so far as is known, to the complete satisfaction of the naval ordnance officers. Considerably more than the contract speed was obtained.

In some districts in England coal is retailing at \$15 a ton, in consequence of the miners' strike. Cold weather having set in early, the condition of the poor, who cannot afford to pay so high a price, is considered serious.

October's fire loss of the United States is estimated at \$11,014,700, which is over \$2,000,000 less than the amount lost in October, 1892. The increase in the total for the first ten months of this year, as compared with the same months of last year, amounts, however, to nearly \$25,000,000, a sufficiently startling presentment. The actual figures are: January 1 to October 31, 1893, \$132,847,400; same period, 1892, \$108,341,550.

A decree has been published by the Italian Government that all customs duties in that country shall hereafter be paid in gold.

The ponderous after barbette of the United States battle ship "Indiana," building at Cramp's yard, was put in place last week. It is composed of the heaviest nickel steel armor ever fitted, and has been in course of construction at Bethlehem for nearly two years, the work of putting it in place occupying two months. The barbette is made in 13 plates, which were forged under the 125-ton hammer. It is 30 feet in diameter, 13 feet high and 17 inches thick, the total weight being 406 tons. The "Indiana" will, it is calculated, be ready for her builders' trial trip by February 1, and the vessel will be delivered to the Government about June 1.

An engineering feat worthy of note was accomplished a few days ago in the completion of the boring of the Busk-Ivanhoe Railway Tunnel under the Rocky Mountains, at Hagerman Pass, Col. The tunnel is close upon 2 miles long, and is bored through solid gray granite. Its accomplishment involved 3 years and 20 days' work, each day being of 20 laboring hours. The tunnel is 10,890 feet above sea level, and is on the line of the Colorado Midland Railway.

The Edison patent on incandescent lamps expired in England on November 10, and from that date their manufacture and sale in that country will be free, with the probability of a considerable reduction in prices.

Depression in the shipping trade is reflected in the returns of Suez Canal receipts for the first nine months of this year. They were \$754,000 less than those for the corresponding period of last year. Hitherto each year has shown an advance on the previous one.

At Indianapolis every effort is being made by the Commercial Club, the Board of Trade and the city officials, in combination, to organize relief for the more than 6000 idle workmen in that city. Citizens have been appealed to to make every improvement of any sort that will give employment, and renters are asked to be lenient.

The work of fitting out a new navy for the Brazilian Government is being

urgently pushed at New York, where a number of recently purchased craft are undergoing rapid transformation into war vessels. Most of the ships are expected to be ready for service by the end of this week.

Immigration returns for October show the number of aliens entered during that month to have been less than half the average for the season. Last year 36,798 were landed in October, but this year the number sunk to 15,466. The authorities attribute the falling off to the business depression in this country having prevented people from sending prepaid passage tickets to their friends in Europe.

October's foreign trade returns for the port of New York show a decrease of \$16,500,000 from the aggregate of October, 1892; but this falling off is due entirely to the large contraction in imports of foreign goods. Exports, indeed, show a slight increase for the month; and for the ten months of the year the aggregate movement of foreign trade shows \$57,150,522 over the corresponding period of last year.

The new steamer "Gloucester," built at Baltimore for the Merchants & Miners' Transportation Company and which made her first trip to Boston a few days ago, is probably one of the finest coasting vessels afloat. The hull is built of steel throughout, and she has four decks as well as a promenade deck. Her length over all is 293 feet; beam, 43 feet; depth, 33½ feet, and tonnage, 2500. Power is furnished by direct tri-compound engines with inverted cylinders, and the four cylindrical and return tubular boilers are capable of developing 3000 horse-power. The arrangement of her water tight compartments renders the vessel practically unsinkable.

The new Pacific built cruiser, "Olympia," underwent a most successful trial off San Francisco last week, proving herself remarkably speedy and an excellent sea boat. Her record showed a maximum speed of 21.26 knots; and her average for 68 hours, with a heavy sea and strong head wind, was just under 21 knots. The builders of the "Olympia" believe she will manage 22 knots on her official trial, and thus carry the palm of the American cruiser fleet.

The Manchester Ship Canal was completed last week and water was admitted to its entire length. It will take two weeks for the canal to receive its full depth of water. The first steamer to traverse the full length of the canal will, it is expected, make the trip on December 1.

It is estimated that damage to the extent of at least \$4,000,000 has been caused to the crops in the Northwest during the present year by a weed known as the Russian thistle. The Department of Agriculture is now investigating the pest.

The dry goods trade has figured prominently in recent notices of failures and embarrassments.

Buffalo, N. Y., now enjoys the distinction of possessing the largest grain elevator in the world in the new Eastern Elevator, which was completed and opened for service on Monday. Its capacity is 45,000 bushels an hour.

Washington advices have it that the Secretary of the Navy will recommend a considerable appropriation for the construction of battle ships.

Estimates based on the November crop report of the Department of Agri-

culture place the corn yield of the United States for this year at 1,648,000,000 bushels. Last year the crop was estimated at 1,628,000,000 bushels and in 1891 at 2,060,000,000 bushels.

### The Valley Situation.

Contrary to expectations, the finishing departments of the plants of the Mahoning Valley Iron Company, Union Iron & Steel Company and the Andrews Brothers Company, at Youngstown, Ohio, did not resume operations last week, although the wage scale of the National Union of Iron and Steel Workers had been signed by the above firms. When the officials of the Amalgamated Association learned that a rival labor organization had made terms with a number of the valley mills they at once saw that if the mills resumed operations under such a scale it would work serious harm to their organization. To prevent this if possible, President M. M. Garland, Secretary J. C. Kilgallon and one or two other officials of the Amalgamated Association went to Youngstown and held a conference with a number of the valley mill owners. What transpired at this meeting was not made public, but it is known absolutely that promises were made that if the owners of the valley mills who had signed the scale and others who had not signed it, but were considering it, would agree to remain idle for a week or so, strong efforts would be made to get as favorable terms from the Amalgamated Association as had been secured from the National Union of Iron and Steel Workers. It was also promised that the request of the valley mills for a \$4.50 per ton puddling rate would be brought up, and the officials of the Amalgamated Association would use their influence and endeavor to have the members of the valley lodges agree to grant it, or in any event, to compromise and return to work on a scale based on \$4.75 for puddling. After consideration this request was granted, the valley mill owners agreeing to keep their plants closed until Monday morning, the 20th inst.

In the meantime a vote is being taken by the lodges of the Amalgamated Association in Western Ohio on the question of holding another conference with the valley mill owners. It is the impression that the result of the vote will be in favor of holding such a conference. It is believed that rather than allow the Youngstown mills to resume operations under the scale of the National Union of Iron and Steel Workers the Amalgamated Association will agree to make such concessions in their scale as were made by the first named organization. At all events, it is reasonably certain that a number of the mills in the Mahoning Valley and other parts of Western Ohio which have been idle since June 30 last will start up on Monday, the 20th inst., though not to full capacity. The fact that two or three concerns in the Mahoning Valley have signed the scale of the National Union of Iron and Steel Workers may complicate matters to some extent, as it is not believed that members of the rival organizations will agree to work side by side. In certain quarters the intimation has been thrown out that if the Amalgamated Association will make a scale suitable to the Mahoning Valley mill owners they, in return, will agree not to treat with the new organization. This report, however, has not been confirmed, and is not believed to any extent.

# The Iron Age

New York, Thursday, November 16, 1893.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.  
CHAS. KIRCHHOFF, - - EDITOR.  
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.  
RICHARD R. WILLIAMS, - HARDWARE EDITOR.  
JOHN S. KING, - - BUSINESS MANAGER.

## The Fall in Scrap Values.

Manufacturers of bar iron have been benefited considerably by the very great depreciation in the price of scrap. Perhaps we might say, they will be benefited when the demand for finished iron enables them to get to running and to running steadily. Early in the present year a comparison was made in these columns of the selling price of bar iron at different producing points and the cost of the scrap purchased by the bar iron manufacturers. It was shown that wrought scrap then commanded from 48 to 52 per cent. of the selling price of bar iron. This was considered wholly disproportionate, and conclusions were drawn that the price of such scrap should be somewhere between 30 and 35 per cent. It was not at that time expected that within a few short months this theory of the relation of these values would be realized. Such is the fact, however, as reports of transactions in old material during the past month show that it is a fortunate dealer who is able to get 35 per cent. of the market price of bar iron for his wrought scrap. From present appearances the value of scrap seems to have been put permanently on that low plane. Accumulations of old material are very large, especially in the West, in sections in which rolling mills have of late been running on short time, if at all. In fact, there are not a few great railroad systems whose stock of scrap has been growing steadily larger all this year in spite of attempts made to move it by sale or in exchange for new material of some description.

Among railroad officials there is a disposition to overvalue this sort of material, although they are persistent bears on the value of whatever they have to buy. Reasoning from past occurrences, they appear to believe that the value of the material they sell will in a reasonable time react from its present depression, and they will then obtain considerably better prices. They overlook two facts, one of which is that owing to the unparalleled depression this year in the iron trade the accumulations of scrap have very far surpassed anything previously experienced, and the other is that steel is more than ever supplanting all forms of rolled iron. The traditions of the old material trade must be completely set aside now, as we are working under a new dispensation. Those who are holding scrap for higher prices will

evidently have to hold it a very long time, and pray in the meanwhile for war or some other great disturbance to create a temporary scarcity of iron and steel. This view of the question is taken without regard to possible tariff changes. Even if scrap is not put on the free list, as now seems probable, other adverse influences are sufficiently strong to prevent a return to higher prices.

With the exception of those who may still have stock in their yards which was bought some months since, the dealers in scrap are gratified at the decline in its value. Much less capital is required for the purchase of material, there is consequently a smaller amount at hazard on each time sale, and there is the hope of a much heavier volume of business in the course of time, as the consumption of everything approaches its normal condition. The use of steel has not altogether displaced iron and it probably never will in the bar trade.

## Cleaning up Stocks.

It would be extremely interesting if statistics could be obtained of the exact condition of stocks of material held by foundries and other iron consumers. Careful observers believe that at no previous time have such stocks been as light as they now are. It is always a question as to how large this invisible supply may be. The stocks in producers' hands are usually known, probably not accurately, but sufficiently so to form an intelligent idea of the current relation between production and consumption. As to consumers' stocks, however, the situation is altogether different. There is no datum on which reliance can be placed. Iron salesmen making periodical visits to their customers report stocks light or heavy, as the case may be, and this vague statement often finds its way into print. And it is likely that there will never be anything more definite known about such stocks. The vast number of consumers precludes any attempt to make the inquiry by even the most zealous advocate of statistical research.

While nothing of an official or even an authoritative character can be had on this subject, there are nevertheless some points making themselves prominent which throw considerable light on it at this time and which seem to form a substantial basis for the assertion that stocks in consumers' hands are less than were ever before known.

Pig iron salesmen report that for months they have found their customers using up accumulations of scrap in their yards to avoid the incurring of liabilities for new material or the payment of cash, for which they had pressing use in other directions. Running much lighter than usual, they did not need a very large supply and most of that was at hand in their own yards. Not only have old flasks been broken up and

melted, but castings which had been thrown aside for slight imperfections that it was expected would some day be overlooked by an emergency buyer have shared the same fate. It has not been unusual for a foundryman consuming generally 2000 or 3000 tons of pig iron per annum to find that he had 300 or 400 tons of such castings in his yard, and under the stress of the financial stringency to decide that it was better for him to break up and remelt them than to lay out cash in buying more iron. Many cases of this character are cited by salesmen, in which foundries have continued in operation to at least half capacity with no pig iron on hand and managers refusing to purchase any, alleging that it was not wanted, which seemed a mystery until the true source of supply of material was explained.

Bar iron salesmen report a somewhat similar experience in their line. Manufacturing consumers will in time accumulate quite a stock of odd sizes and shapes in their warehouses, but continue to buy what they need for work in hand and only occasionally find a place for something out of the old stock. Latterly, however, this has been very carefully overhauled, and in more than one establishment shapes have been made to fit and sizes have been made to suit that would have been rejected without a moment's consideration in easier times. It will probably be found that such warehouses have cleaner racks at this time than they have had for years, if ever before.

This general cleaning up of stocks now seems to be about ended. There may be some consumers here and there who can run on for a little longer time without buying fresh material, but their number must certainly be small. A considerable part of the improvement in the demand for pig iron in some important markets is thus accounted for. The general condition of trade may not have grown much better, but the producers of crude iron are again in the enjoyment of a demand which had for a time been cut off by the economy that consumers were able to practice.

At a recent meeting of the Engineers' Club of Philadelphia Wilfred Lewis exhibited a section of a 7-inch steel stay bolt from a hydraulic riveter, which had broken in the nut about  $2\frac{1}{2}$  inches from the end of the bolt. The static load on the bolt was 450,000 pounds, and at the time the actual load probably did not exceed 600 pounds. It has been found by experiment that when a nut is made to come at the end of a bolt to obtain uniform stress throughout the bolt it is not sufficient to make its thickness equal to half the diameter of the bolt, as is generally supposed. The thickness of the nut should be at least equal to the diameter of the bolt. Mr. Lewis then explained and illustrated a method of calculating the stress in a bolt, showing that it varied with the square of the diameter, and stated that experiments, which he believed verified the equation given, had been made by the Edge Moor Iron Works, but that he was not yet in possession of the figures.

## CORRESPONDENCE.

## Boiler Awards.

*To the Editor:* My attention was arrested by the letter in your issue of November 9 coming from the Babcock & Wilcox Company containing an excuse for their non receipt of an award for their boiler exhibit at the World's Columbian Exposition. As the writer's position and intimate relation with the boiler plant at the exposition will vouch for his ability to write on this subject, and knowing that many, if not most, of your readers are more or less interested in boilers, and especially in this, the largest and most interesting boiler plant the world has ever seen, I beg to offer the following that injustice may not be done to the exposition nor to the judges.

Concerning these judges, I would ask are they not men of acknowledged standing, experience and integrity in the engineering world, who sacrificed their regular practice at home and virtually gave their service to the World's Fair? Surely it cannot be denied that they contributed not a little to the success of the department in which they acted, establishing a reliable record of the many engineering exhibits which probably would never have been accurately recorded had it not been for their conscientious efforts to discharge the duty which was intrusted to them.

This letter from the Babcock & Wilcox Company states that "it was the purpose of the jury to make awards on boilers based entirely upon the written statements of the exhibitors of boilers without tests or any personal knowledge in the possession of said jury concerning the comparative construction, operation, economy and durability of said boilers."

It is very true that each one of the manufacturers exhibiting boilers there was asked to make either a written or verbal statement of the points of excellence in his boiler to the judges, but we would ask you and your readers whether these statements were made before a body of laymen entirely ignorant of the subject in question, or were they made before men who were well informed as to the construction and working of all the boilers in operation at the World's Fair? Such men as George H. Barrus of Boston and Prof. James E. Denton of Stevens Institute headed the list of these jurors, men whose position has made it impossible for them to be prejudiced in favor of any one make of boiler over another; men who have made test after test on most of the leading modern makes of boilers.

As I have already stated, it is true that the boiler manufacturers were asked to testify before this competent jury of experts who were well able to "separate the wheat from the chaff" and investigate not new boilers, but old acquaintances, we might say, which were before them at the fair and with their past experience judge the points of superiority which each of these manufacturers stated as being contained in his boiler. Besides these mere "written statements of the exhibitors" for the judges to consider, much valuable information has been collected by the engineering corps of the fair, who had charge of the boiler plant, which in itself brings out some points of comparison quite worthy of consideration.

Why is it that the Babcock & Wilcox Company shrank when they were called upon to appear before such a jury as this? One would think, after reading

this letter from the Babcock & Wilcox Company, that they had entered their boilers in the exposition boiler house with eager expectation for a competitive test, but alas, they had been denied the opportunity to show their production superior to all its neighbors.

If this was really what they wished, if they wanted a public record based on the actual performance of their boilers at the World's Fair, why did they not accept the invitation of the exposition officers and participate in a series of boiler tests which would have been conducted with the utmost care and fairness by such able men as we have named above. If they were so sure of the superiority of their boiler, as claimed in this letter, why did they not go on with these tests and challenge all other companies there to compete with them? If they had done this they would most positively have met with a quick response. There was never a better opportunity to prove their boast, and probably it will not occur soon again. On the contrary, when this proposition was made they were, I believe, the very first to "withdraw their boilers from all competition," including such tests.

ALBERT A. CARY.

NEW YORK, November 15, 1893.

## "Julian Bessemer," Impostor.

*To the Editor:* On Wednesday last a smooth faced young man came into my office, and in very friendly terms greeted me, saying he was the grandson of Sir Henry Bessemer, and after humming and hawing a good deal he very coyly stated that he had been in the cattle ranch business in Colorado and had been swindled by his partner, &c., showing numerous bullet wounds, &c., but cautiously avoided asking for help. He was very glib tongued, and is seemingly a very well educated young man. He was invited to view our works, but through all his smartness I seemed somehow or other dubious of his real identity, because the thought passed through my mind that I had read in some paper of some young man having assumed a false name, but at the time could not fully make up my mind where I had seen the notice. One of our officials who took him around the works was also doubtful of his being whom he represented himself to be, and after bringing him back into the office his (the official's) thoughts wandered to *The Iron Age*. I had in the meantime offered him shelter for the night at the club house, and the aforesaid official in a few moments brought me the notice given in your paper showing him to be the identical party who had misrepresented himself in the Mahoning Valley. I immediately caused his arrest, and he completely broke down during an examination and gave me his correct name, and stated that he was trying to make his passage money back to Europe by these means. Not having had any trade or business, he no doubt had found it difficult getting employment in these times. He was locked up for the night and was admonished very severely by the magistrate, and on his promise to leave the district he was told to get out as quickly as possible. We had it published in the Philadelphia papers, and also showed him the copy of the papers, so that his game is ended in that line. He had no idea that he had been published in *The Iron Age*, and was taken back considerably when shown your article.

He gave 22 years as his age, and I firmly believe he is of good people, and I intend finding out if that is so, so I

do not think, for his parents' sake, that it would do the public any good to give his true name, and keep them from being heart broken over the affair. We owe thanks to J. G. Butler of Youngstown, who took trouble to write to Sir Henry Bessemer and get his denial of his story, and to you for publishing it in your paper, otherwise he might have gone on the same plan for an indefinite period. Very truly yours,

FRED. HERON,

Gen. Manager Phoenix Iron Works.  
PHOENIXVILLE, PA., November 13.

## OBITUARY.

LUTHER DORR EMERSON.

Luther Dorr Emerson, president of the Emerson & Stevens Mfg. Company, Oakland, Maine, died suddenly on the 28th ult. He had been in poor health for some time, but had recently improved in health, and an hour before his death had been sitting up reading the newspapers. Mr. Emerson was born in Arrowsic, now Georgetown, Maine, in 1816. He attended the Bloomfield and Farmington academies, and subsequently taught school, worked in a woolen mill and was clerk in a store in Quincy, Mass. In 1842 he moved to Oakland, then West Waterville, where he entered the employ of Sherman Hale & Co., manufacturers of scythes. In 1844 he went with R. B. Dunn to North Wayne, where he was employed in connection with the North Wayne Tool Company. He remained with Mr. Dunn until 1865, when a new scythe and axe concern was formed under the firm name of Hubbard & Blake Mfg. Company, and Mr. Emerson was made manager of the shop. In 1870, having withdrawn from this firm, he associated himself with J. E. Stevens, W. R. Pinkham and G. W. Stevens and built a shop and continued the manufacture of scythes and axes up to the time of his death. One of Mr. Emerson's most prominent characteristics was his love for old Maine history and antiquarian research, in which respect he was very well informed. He was a member of the Maine Historical Society. Mr. Emerson had a kind, warm heart and his charitable deeds were numerous. He was one of Oakland's most prominent citizens, and was held in very high esteem by all who knew him.

## PERSONAL.

J. von Ehrenwerth of Leoben, Austria, has sailed for home.

Eckley B. Coxe of Drifton has been nominated for a second term of the presidency of the American Society of Mechanical Engineers.

Dr. Claus, general manager of the famous old Thale Works, in the Hartz Mountains, manufacturers of sheets and enameled ware, will soon return home, via Gibraltar.

James Jessop, of the firm of Wm. Jessop & Sons, Limited, importers of steel, 91 John Street, New York, has returned from a trip abroad, very much improved in health.

Fr. Lehman of Naylor & Co., New York, sails for Europe next Tuesday.

All work on the old Springfield rifles at the army arsenals has been stopped and every effort is now being made to complete as quickly as possible the new small caliber magazine rifle to replace the old pattern in the army.

# MANUFACTURING.

## Iron and Steel.

The machinery equipment of the Spearman Furnace of the Spearman Iron Company, Sharpsville, Pa., is being put in thorough repair in order that the plant may be in the best possible condition when it has been decided to put the furnace in blast. At present, however, this is very uncertain, as operations will not be resumed before December 1 next, if then.

The Emporium Steel Company of Emporium, Pa., have made application for a charter of incorporation. The officials are as follows: J. Pitt Felt, president; Hon. S. S. Smith, vice president; John D. Logan, treasurer; L. K. Huntington, secretary, and R. L. Watters, superintendent.

In the Supreme Court of Pittsburgh last week the case of Jas. Mathews against Park, Brother & Co., Limited, of that city, appealed from the lower court by the defendants, was heard. Mr. Mathews was a roller in the employ of the firm and was discharged before his contract expired. He then sued for the balance of the wages he claimed was due him under his contract. This is the second time the case has been tried in the Supreme Court. At the last trial the plaintiff was given a verdict for \$6052.67.

No. 2 Rolling Mill of the plant of the Cambria Iron Company, at Johnstown, Pa., which has been idle for some time, resumed operations last week. We are advised that the outlook among the larger industrial establishments at Johnstown is much better now than for the past three or four months. At the various mills of the Cambria Iron Company there is more activity, and at the plant of the Johnson Company, manufacturers of steel rails, nearly every department is in operation to full capacity, with good prospects of continuing in this way for some time to come.

Rosena Furnace, at New Castle, Pa., owned by the Oliver Iron & Steel Company, Pittsburgh, has again resumed operations after an idleness of some months. During the time the stack was idle extensive repairs were made, including the building of new stoves, new draft stack and other improvements. The furnace is now one of the best equipped in every way in the Shenango Valley, and is expected to turn out about 200 tons of iron per day.

The Oil Well Supply Company of Pittsburgh, manufacturers of oil well supplies, are endeavoring to obtain an extension on all accounts of \$500 and over. We are advised that the prospects are encouraging.

The capacity of the Solar Iron Works of Wm. Clark's Son & Co., Pittsburgh, is being increased by the erection of three iron buildings, 100 x 100, 50 x 218 and 56 x 260 feet, respectively.

The Anderson Steel Casting Company, at Anderson, Ind., have resumed operations.

The furnace of the Temple Iron Company, at Temple, Pa., is being blown out.

The Philadelphia *Enquirer* is authority for the statement that experts working on the books of the Cambria Iron Company of Johnstown, Pa., have discovered irregularities which indicate that a deep plot was laid to defraud and rob the company.

The Columbia Rolling Mill Company, Columbia, Pa., have resumed.

An explosion occurred last week at furnace H of the Edgar Thomson plant, at Bessemer, Pa. Considerable damage was done to the furnace and a number of the employees were seriously injured. The stack will be idle some days while necessary repairs are being made.

The Marlin Iron & Steel Company, Incorporated, of Allegheny, Pa., were granted a charter last week, with a capital stock of \$40,000. The new concern propose to engage in the manufacture of iron and steel. The directors are as follows: Harry A. Marlin, Francis D. Marlin, John B. Chapman, Perry O. Laughner of Pittsburgh and Elmer E. Laughner of Coraopolis, Pa.

The puddling and rolling mills of the Harrisburg Rolling Mill Company, at Lochiel, Pa., which shut down August last, have resumed with about one-half the old force of men.

The new additions to the armor plate press department of the Homestead Steel Works, at Homestead, Pa., are being pushed

rapidly to completion. The large hydraulic press and other castings lately arrived from England are being put in place.

The Philadelphia Rolling Mill of Hughes & Patterson, Philadelphia, which has been idle since October 18, has resumed, giving employment to over 600 hands, the complete force.

The E. & G. Brooke Iron Company, Birdsboro, Pa., are installing new boilers in their nail works in order that this department may be run independent of the other departments of the works.

Judgments have been taken for \$8387.59 in favor of the Ashland Iron & Steel Company of Ashland, Wis., against the West Superior Iron & Steel Company of West Superior, Wis.

The annual meeting of the stockholders of the Reading Rolling Mill Company, Reading, Pa., was held in Philadelphia last week. The following directors were elected: Joseph H. Cofredo, Francis H. Saylor, Josiah F. Bailey, Charles A. Sterling, George W. Bush, Ellis Ames Ballard and Edward J. Kelly, the latter two being additions to the board. A committee consisting of A. M. DeHaven and Siddons Harper were appointed to prepare certificates of the status of the business of the Reading Rolling Mill Company.

In the courts at Pittsburgh last week a verdict for \$7890.36 for the plaintiff was given in the case of C. W. Badgley & Co. for use of W. P. White against the Columbia Iron & Steel Company. The suit was for commissions on the sale of iron and steel, and no defence was made. In the United States Circuit Court, in the case brought against the same company by Pennox Brothers, Judge Buffington made an order refusing the motion made by the plaintiffs for the appointment of a receiver for the defendant company. The first mortgage bondholders of the Columbia Iron & Steel Company have foreclosed bonds to the extent of \$7000, and it is expected that the property will be forced to a sale at once. The bonds were held by the Dollar Savings Bank of Pittsburgh, and were foreclosed through the agency of Safe Deposit & Trust Company of Pittsburgh.

Hiram H. Peck, a banker of Covington, Ky., and Charles D. McGuffey of Chattanooga, Tenn., have been appointed receivers for the Southern Malleable Iron Company of the latter city. The company owe the Northern Bank of Kentucky \$28,026, and joined in the application for a receiver. The bonds of the receivers were fixed at \$20,000 each. It is understood that the works will continue to be operated by the receivers.

It is stated that all the departments of the Diamond State Rolling Mill, at Wilmington, Del., except the horseshoe mill, have shut down for an indefinite period.

The Portage Iron Company of Duncansville, Pa., have started all their departments, including the guide, bar and hoop mills.

We are advised that the statement that the Monongahela Iron & Steel Company, manufacturers of muck iron, whose plant is located at Hay's Station, near Pittsburgh, have secured enough orders to run for the entire winter is without foundation. This plant is running on a few light orders, but there is not sufficient work ahead by any means to warrant the statement that the plant will be run right along.

Allegheny Furnace, at Iron Gate, Va., has resumed operations after one month's idleness.

The workmen of the Belleville Steel Company, Belleville, Ill., have succeeded in raising \$14,000 of the \$15,000 necessary to start the works of the company. The reorganization will be effected at the end of 30 days, and the mills will then be started.

The Massillon Rolling Mill of Jos. Corns & Son, at Massillon, Ohio, has started up, giving employment to 250 men. The works have been idle since July 1.

The annual meeting of the stockholders of the Norristown Steel Company of Norristown, Pa., was held at the office of the company on the 8th inst., when a reorganization was effected by the election of the following officers: President, H. H. Haines; vice-president, E. M. Daniels; treasurer, C. C. Highley; secretary, Joseph H. Hampton, and general manager for the company and receivers, George J. Humbert. The receivers presented an exhaustive report showing

the affairs of the company to be in a prosperous condition.

The difficulty between the firm of Morrison, Colwell & Page, proprietors of the rolling mill at Cohoes, N. Y., and their employees has been settled and an agreement made. Heretofore the prices paid were \$3.75 per ton for the best iron and \$3.50 for common iron. The men resumed at the rates of \$3.25 for the best iron and \$3 for the common iron. Mr. Page has promised the employees that as soon as business improves he will restore the old scale of wages.

The merchant train at the Rensselaer Iron Works, Troy, N. Y., has again been started and 200 men are employed. This was done in accordance with an order from the court permitting the Troy Steel & Iron Company to complete certain orders that had been taken before the works closed.

The Etna Furnace, at New Castle, Pa., will blow in as soon as it can be put in working order.

A press dispatch from Wheeling, W. Va., states that the Whitaker Iron Company's Crescent Iron Works have been destroyed by fire. The loss is given as \$85,000, and the insurance at \$70,000. The works were built in 1855, and embraced 15 double puddling furnaces, three heating furnaces and nine trains of rolls. Their product was sheet iron exclusively, of which they had an annual capacity of 13,000 net tons.

From Reading, Pa., comes the news that the Carpenter Steel Company of that city, who have furnished the Government with \$750,000 worth of projectiles, have received another order for projectiles for coast defense purposes which will keep the firm busy for two years.

At the annual meeting of the stockholders of the Eagle Iron & Steel Company, Ironton, Ohio, manufacturers of bars and iron and steel sheets, Wm. Marting, Jr., was elected a director in place of F. C. Tomlinson. Geo. T. Thomas also succeeds F. C. Tomlinson as secretary and treasurer.

Niagara Furnace of the Tonawanda Iron & Steel Company, at Tonawanda, N. Y., which has been banked for 70 days, resumed blast on the 13th, and made a successful start.

The construction department of the Philadelphia Bridge Works, at Pottstown, Pa., has resumed operations on double turn, and the nail mill of the Pottstown Iron Company has started 20 machines.

B. F. Hean, Jacob M. Shenk and John Meiley, Lebanon, Pa., have completed the appraisal of the assigned estate of Robert H. Coleman, the Cornwall iron manufacturer. The real estate is valued at \$3,448,948.68 and the personal property at \$702,177.90, making the total appraisement \$4,141,126.60. It does not include Mr. Coleman's interest in the Jacksonville, Tampa & Key West Railroad.

## Machinery.

The Buckeye Engine Company of Salem, Ohio, have recently received an order from the Ohio Steel Company of Youngstown, Ohio, for two 300 horse-power tandem engines, non-condensing, with a fly wheel 13 feet in diameter by 36-inch face.

Arrangements have been about perfected by which the Common Sense Engine Works of Muncie, Ind., will be taken from the receiver's hands and started up at an early date. G. Campbell Janney is to be president, J. C. Johnson vice-president, James R. Sprinkle secretary and treasurer and Jemy F. Howell general manager. A number of orders are now on hand.

The J. I. Case Threshing Machine Company of Racine, Wis., are increasing their capacity by the erection of a new molding shop—two L's, 210 x 80 feet and 84 x 80 feet respectively. It will be of brick, with an iron truss roof having a span of 80 feet. Two cupolas, capable of melting 50 tons a day, will be furnished by the Detroit Foundry Equipment Company.

The Brown & Sharpe Mfg. Company of Providence, R. I., are operating their works nine hours a day, six days in the week, with about three-quarters of their regular force. Their sales for the past two months have been better than they anticipated, in view of the great depression in the machinery and kindred trades.

The Lowville Iron Works Company of Lowville, N. Y., manufacturers of wood pulp and paper mill machinery, have shipped a cargo of wood pulp machinery to the Milton Wood Pulp Company, Milton, Nova Scotia, which is part of the equip-

ment of that mill, and will ship two more carloads at an early date.

F. E. Reed & Co., manufacturers of machine tools, at Worcester, Mass., are at present employing about 100 men, or a trifle over half their usual force.

The Woodruff Mfg. Company of Hartford, Conn., makers of key seat milling machines, are operating their factory 50 hours per week with a greatly reduced force. In view of the general depression of business among the manufacturers of machinery, the company do not regard the immediate outlook for business in their particular line as very promising.

The Columbian Regenerative Furnace Company, capital \$25,000, and the Columbia Foundry Company, capital \$25,000, have been chartered under the laws of Pennsylvania to carry on business at Philadelphia.

The Penberthy Injector Company of Detroit, Mich., are meeting with success in the introduction of their improved automatic injector and other steam specialties. The increase in their business made it necessary for them to enlarge their factory in May last, since which time the works have run without interruption.

The E. Horton & Son Company, Windsor Locks, Conn., manufacturers of the well known Horton lathe chuck, are operating their works on full time but with a reduced force.

The National Pipe Bending Company, makers of the National feed water heater, of New Haven, Conn., contemplated building an addition to their south factory this fall, but the change in the times, the falling off of business and the stringency of the money market compelled them to lay the plans over for another year.

Since their reorganization and incorporation, on May 17 of last year, the Wais & Roos Punch and Shear Company of Cincinnati, Ohio, have largely increased their facilities for manufacturing by installing new tools and an addition increasing their floor space one-third. They have improved their 10½ foot overgeared power shear, and perfected a leveling machine used largely by galvanizers, besides adding to their line doublers, branning and cleaning machines used by tin plate manufacturers. The company believe that only for the lack of confidence in the policy of the Government they would be taxed to their full capacity, but at present orders are slow.

N. P. Bowsher, South Bend, Ind., manufacturer of Bowsher's combination feed grinding mills, reports sales fully up to last year's mark, with better prospects for future business than at any time during the last three years. He is operating his works with a full complement of men.

The Fox Machine Company, makers of wood and iron working machinery at Grand Rapids, Mich., have completed a 30-foot extension to their knife department in order to obtain better facilities for handling their increased knife business.

The Chandler & Taylor Company, Indianapolis, Ind., well-known as manufacturers of engines, boilers and saw mills, are operating their plant with from one-quarter to one-third of their regular force.

H. Bickford of Lakeport, N. H., who makes the manufacture of boring and turning mills an exclusive specialty, has continued to operate his works on full time.

The Ingersoll-Sergeant Drill Company of New York are moving their machinery to the new works at Odenweldertown, Pa.

The inventory of the assets of the Eagle Machine Works Company, Indianapolis, Ind., shows bills receivable and accounts, \$44,514.97; real estate, \$48,500; machinery, tools and fixtures, \$13,290.45; stock on hand, \$11,954.91, a total of \$118,260.33. The liabilities, admitted and contested, aggregate \$130,000. It is not thought advisable at this time to put the plant on the market or continue the manufacture of machinery. It will be kept in operation only to the extent of doing such repair work as is incidental to the business.

Notices have been posted in the North Reading Foundry, at Reading, Pa., to the effect that a reduction of 10 per cent. in wages would take effect at once. About 150 men will be effected, but it is hoped to give them work all winter.

The Briggs Mfg. Company of Niagara Falls, with a capital of \$1,000,000, have been organized in Wheeling, W. Va., to manufacture the Briggs automatic press feeder, a Niagara Falls invention. The members of the company are chiefly the directors of the Carter-Crume Company of

Niagara Falls, who intend, it is understood, to operate a large factory at the Falls for the manufacture of several patents held by Mr. Briggs.

The new plant of Reeves Bros., at Alliance, Ohio, has been put in partial operation, although it is not yet in a completed condition. The old works at Niles have been kept in constant operation, but an excess of orders made it necessary to begin work in the new plant. The latter represents an investment in machinery alone of \$60,000, and the facilities are far superior to the Niles works. It had been the intention to proceed with the erection of a second building as large as the main building, but owing to the depressed condition of business the work of erecting the second building will not begin before spring.

The Phoenix Iron Foundry, at Syracuse, N. Y., has shut down, it is stated, on account of dull times.

The works of the Columbian a Pump & Machine Company, at Columbiana, Ohio, have started up after a shut down of four weeks. Forty-five men are at present employed.

Clark Bros. & Co.'s Machine Bolt Works, at Milldale, near Southington, Conn., have been burned to the ground. Loss, \$60,000; insurance, \$40,000.

The foundry of Daniel T. Kelley & Sons, at Portland, Maine, has been damaged by fire. The loss is about \$12,000, chiefly on patterns, caused by the indiscriminate use of water by the Fire Department.

The new machine shop of the Boston Iron & Steel Company, at McKeesport, Pa., has been totally destroyed by fire. The loss is about \$5000, covered by insurance.

The Grant Anti-Friction Ball Company of Fitchburg, Mass., have sold their business to the Cleveland Machine Screw Company of Cleveland, Ohio, and the business will be removed to the last named place as soon as suitable buildings can be erected, probably in the spring. The transfer includes the real estate, buildings, machinery and tools.

The business formerly carried on at Toronto, Ontario, under the name of the Doty Engine Works Company and the John Doty Engine Company, Limited, will henceforth be known as the Bertram Engine Works Company. The company operate engine and boiler works and conduct a general shipyard business.

The preparations for the industries at Love's model city, near Buffalo, N. Y., are progressing rapidly. The foundation for the Empire Mfg. Company's new building and machine shop is completed. The cupola and rattling room are well under way. The town company have secured another industry in the shape of the plant of Ezra F. Landis of Lancaster, Pa., who is a manufacturer and dealer in engines, boilers and other machinery. He will erect a substantial plant in the spring. He will remove his machinery to the model city at once, placing it in temporary buildings.

The new factory of the Interchangeable Tool Company, near Utica, N. Y., has been completed and the concern are all ready to commence operations.

Warren Webster & Co. of Camden, N. J., report business good in their line. They have a large number of orders in hand for Webster vacuum feed water heaters and purifiers, among them one from the Chicago Edison Company for a 4000 horse-power heater, which is a second order received from that concern, the first being for a heater of 1700 horse-power, and another from the Carnegie Steel Company for two heaters, each 2750 horse-power capacity, which is also a second order.

The plant formerly operated as the Bogart Gas Engine Company, Covington, Ky., including all the machinery used by that firm, has been leased by C. W. Bogart and H. W. Sumner, who will continue the production of high grade gas and gasoline engines. A new store room will be erected and the new firm anticipate a large demand for the new type of engine they are now producing.

The Loeb Mfg. Company have been recently organized to manufacture and deal in polishing materials and nickel and electro platers' supplies. Charles Loeb is president of the company, the office being at 216 Church street, New York. The works of the new company are in Brooklyn.

Woodward & Rogers, manufacturers of machine tools and special machinery, at Hartford, Conn., report a material increase in business thus far this month

over the three preceding months. They are running their plant nine hours a day with a full force of men.

A. T. Shoemaker, Boreel Building, 115 Broadway, New York, is placing on the market a geometric boring and turning tool.

#### Hardware.

The Syracuse Steel Wire Company, Syracuse, N. Y., have been incorporated for the purpose of manufacturing steel wire. The company have a capital of \$20,000, and their directors are Edwin D. Dickinson, Austin R. Dickinson, Charles H. Halcomb and William S. Teal, all of Syracuse.

The works of the Dominion Horse Shoe Nail Company, Montreal, P. Q., were damaged by fire on the 6th inst. to the extent of \$5000, a loss which is partially offset by insurance.

The men employed on gun work by Colt's Patent Fire Arms Mfg. Company, Hartford, Conn., have commenced to work ten hours a day. They have been on an eight-hour schedule for several months.

The machinists employed by the Pope Mfg. Company Hartford, Conn., about 35 in number, will hereafter work 14 hours per day on account of the approaching busy season on bicycles.

The Upson & Hart Company, Unionville, Conn., are now running but eight hours a day.

The Hatch Cutlery Company, Milwaukee, Wis., have amended their articles of incorporation, by which the capital stock is increased from \$100,000 to \$200,000.

Sargent & Co., New Haven, Conn., are now reported to be running five days a week, owing to improved business.

Nichols, Shepard & Co., Kansas City, Mo., will erect a new implement warehouse. The building will be 63 by 128 feet, four stories high, and will cost \$15,000. It is expected that the new building will be completed by January 1.

The shops of the Weir Plow Works, Monmouth, Ill., which have been idle since June, have started up for the winter. One hundred and fifty men have been given employment. It is thought that the force will soon be doubled.

Clark Bros. & Co., Milldale, Conn., whose works were recently destroyed by fire, will rebuild.

Cordeley & Hayes, 172 Duane street, New York, issue a circular under date of November 10, in which they state that their factory at Lockport, N. Y., which was destroyed by fire some time since, will be running again within two weeks, and with this increase of capacity they will be able in future to be more prompt in the filling of orders. It is intimated by the agents that they now have on their books orders for a large quantity of goods, which will be filled as nearly as possible in the order in which they were received.

The factory of the Bridgeport Crucible Company, Bridgeport, Conn., a three-story wooden structure, was totally destroyed by fire on the 9th inst. The loss is estimated at \$40,000, the company having had a large stock on hand. The insurance is \$37,500, and was only taken out three days prior to the fire. E. G. Burnham of the Eaton, Cole & Burnham Company is president of the concern.

A can of naphtha caught fire from a gas jet in the factory of the Rush Cutlery Company, Springfield, Mass., on the 9th inst. The building was badly damaged by fire and water, and the machinery is nearly a total loss. A large stock of finished cutlery for Christmas orders is also damaged. The loss is estimated at \$8000, partly insured.

The factory of the Grand Rapids Refrigerator Company, Grand Rapids, Mich., manufacturers of the Leonard cleanable refrigerators, is running full time and force. The company advise us that they have been awarded three medals and a diploma at the World's Fair on the excellence of their goods. Their new catalogue is now in preparation and will soon be distributed to the trade. It is stated that many new designs and improvements have been added for the coming season.

C. & A. Hoffman of Frankford, Philadelphia, manufacturers of butchers' and table steels, finding their business demanded larger quarters, have established themselves in a two-story brick building recently erected by them on Orchard street. The

greater part of the ground floor is used as a forging, grinding, annealing and cutting shop, and the remainder is taken up for engine and boiler room, tempering room and offices. The second floor accommodates the finishing and mounting departments, packing and store rooms. The line of steels made by the firm covers all kinds in general use from the extra long carvers' steels for hotel use to the small table steel. The steels are made entirely by machinery, securing, it is claimed, a keen and uniform cut. The annealing and tempering are done under the personal supervision of the partners. The firm's goods enjoy a high reputation for their quality. The firm report a heavy demand for their butchers' and slaughter house steels and among recent shipments have been some to Asia and Africa. The present equipment of their factory provides for the employment of 12 hands and enables them to turn out about 300 dozens of assorted steels per week.

Dunham Nut Company, formerly Dunham Nut Machine Company, Unionville, Conn., are equipping their new factory with machinery. They are also putting in a 20 horse power engine and 25 horse-power boiler. When the factory is in running order the company's specialty will be finished nuts of the various grades, including case hardened, triple and semi-finished. They will also continue to make the cold press machines as heretofore.

#### Miscellaneous.

The new factory of the Franklin Brass & Bronze Company, at Birmingham, Conn., is about completed, and the machinery is being put in place. The main building is 150 x 40 feet, two stories high, and the foundry is 50 x 25 feet, the total floor space being 13,250 feet. Operations will begin in three weeks.

The Bath Iron Works, Bath, Maine, have secured the contract for furnishing the windlasses and steam capstans for the two vessels which the Cramps are now building for the Inman line, the contract price being about \$40,000.

The California Wire Works of San Francisco, Cal., have shipped the first of 14 steel cables they are making for the St. Louis, Mo., cable railways. The cable shipped was 21,500 feet long, 1 1/4 inches in diameter and weighed 55,000 pounds. The company have secured the exclusive right to manufacture the Hallidie ropeway, and have already erected several at the leading mines on the Pacific Coast, in British Columbia and in Mexico.

The Anniston Pipe Works, which have been in the hands of a receiver for three years, will be sold December 4, at Anniston, Ala.

The annual meeting of the stockholders of Cofrode & Saylor, Incorporated, was held in Philadelphia last week, at which the following directors were re-elected, Jos. H. Cofrode, Francis H. Saylor and Henry R. Leonard.

The Penn Bridge Company of Beaver Falls, Pa., contractors and manufacturers of bridges and structural material in iron and steel, have recently reduced wages of their employees 10 per cent. This action was necessary on the part of this firm in order to meet similar action taken by their competitors in business.

The tin and stamping works of the Thos. McDonald Mfg. Company, at Montreal, P. Q., have been burned. The loss is \$50,000, covered by an insurance of \$27,000.

About 375 men have gone to work at the Hoosick Falls, N. Y., plant of the Walter A. Wood Mowing & Reaping Machine Company to fill an order from South America for 367 harvesters and binders and an order for 247 mowers.

Levi Case & Co. of Schenectady, N. Y., are building a copper torpedo boat, which is said to be intended for the Brazilian Government.

At Pittsburgh last week a bill in equity was filed by U. S. Byram against the Pennsylvania Fence Company, Limited. The plaintiff holds a judgment against the defendant company, whose only assets consist of a patent for a metallic fence. He wants the concern restrained from disposing of the patent except by order of the court and the first proceeds from its sale to be appropriated to his judgment.

## TRADE REPORT

There is little that is new in the Steel Rail trade, although a good deal of eager searching for work is going on. More than ever before, the surrounding circumstances govern the basis on which business is being negotiated. Pittsburgh advices indicate that \$20 at that point is spoken of in order to reach distant markets in competition with mills whose natural territory it is.

Thus far the break has brought out but little work. Buyers seem inclined to watch further developments before taking action. In the Iron trade generally the question most eagerly discussed, with apparently little positive evidence available, is the relative cost of Steel Rails and Steel Billets, under the extraordinary circumstances now prevailing. The capacity of the giants in the business to inflict and stand punishment is commented on. The verdict of the knowing ones is that they are more closely matched than some of the contestants themselves may fondly believe.

In Pig Iron there has been a somewhat livelier buying movement, notably in Cincinnati, where Pipe founders have covered the material for sales made. In Philadelphia contracts for about 24,000 tons of Cast Iron Pipe have been taken, a part being captured by a Southern foundry. Another Southern works has secured the contract at Waterbury for about 6700 tons. The Chicago market has been upset by a cut in freight rates on Southern Iron to \$3.65 from Birmingham.

In Soft Steel quite a large business has been done in Pittsburgh, and some advices report the market as firmer. It is certain that some of the makers decline to enter new business for early next year at present prices. Rumors of extraordinary figures continue to make the rounds. An investigation through the best sources among both sellers and buyers shows them to be without any justification whatever. \$17.25 is a close price now.

The prospect of the early starting of the Valley mills has caused some weakening of Bars in Western markets, and Chicago notes also some very low prices on Beams. What contracts for Structural Material have come up lately in Eastern markets have been taken by Pittsburgh mills.

The sales of Wire Rods at \$24.50 in Western markets have ceased and \$25 is now bottom. The Western Wire Nail mills report that their tonnage has been very heavy lately, apparently due to the pressure to stock up distant markets before the close of navigation.

In Copper the fact is established that the Calumet & Hecla Company have made a large sale. Details, however, are not available as yet. The market has stiffened up since then.

## Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., November 14, 1893.

Attempts are being made to persuade people that things are improving, but evidences thereof are not very satisfactory. It would not require very much of a demand to start such a movement, however, and the chances in that direction are not unfavorable, but that the turn has actually been made is "not proven." Prices are in no case better than they were a week ago; there has been no general increase in the volume of business, and no tangible evidences that either of these desirable features are on the point of being immediately realized. A more cheerful feeling has been manifested since the elections, however, and there is more inquiry for quotations, indicating that the trade are disposed to anticipate requirements, providing that developments are favorable, but confidence has not been strong enough to induce heavy purchases. It may also be noted that there is less pressure to sell, so that, taking everything into account, even if there has been no other gain, the disposition is to look for better times, rather than the reverse.

**Pig Iron.**—The market ought to improve, but it has not responded as promptly as could be desired. The decrease in stocks and the extremely small output ought to inspire confidence, considering the low prices now ruling, but in most cases orders can be placed at the same prices as last week, and, so far as we can find, no one has had courage enough to ask an advance. At the same time there is less pressure to sell, and buyers may not be entirely safe in postponing their orders much longer. It would not take much to start the market on an up turn, but it evidently needs something to start it, or the movement would have been well under way by this time. The market is a waiting one, sales in the meanwhile being within the following range for Philadelphia deliveries:

No. 1 Foundry .....	\$13.75 @	\$14.25
No. 2 Foundry .....	13.00 @	13.25
Standard Gray Forge .....	12.00 @	12.50
Ordinary Gray Forge .....	11.50 @	11.75

**Steel Rails.**—It has been evident for some time that prices were crumbling away, so that the recent sharp break was not much of a surprise. It is probable, however, that there is more in it than appears on the surface, and that the break is a kind of preliminary to something which is not yet ready for announcement. Opinions vary as to the effect of the reduction; it would be a good thing to secure work for the men during the winter months, but it is very doubtful if it will increase the demand at all, as the roads are in no condition to anticipate their needs, and as the president of the Pennsylvania Company remarked: "We are not speculating in Rails." Nevertheless, prices were too high, and a reduction to \$25 is only in fair proportion with other articles; moreover, it is claimed that no such prices as \$22, Pittsburgh, have been named or accepted. It is said that the Carnegie Company offered to deliver 3000 tons to the Boston & Albany Road at \$25, but the order went to the Scranton Company at a price a shade under \$23.75, f.o.b. Under the circumstances prices are very unsettled and may be anywhere from \$22.50 to \$24, f.o.b. cars—all depends on quantity, delivery, &c., but in the meanwhile there is no great desire to place orders notwithstanding the lower cost.

**Steel Billets.**—The market is dull and prices not particularly strong. Sellers quote \$19.75 @ \$20, delivered, but to the right kind of buyer there would be no difficulty in shading the inside figure. Consumption is not large, however, hence there is comparatively little disposition to buy, except in small lots.

**Finished Material.**—Things are practically in the same condition as noted for some time past. The volume of business does not increase in the aggregate, although some mills are doing very much better than they were two or three months ago, but they are the exception and not the rule. The large mills (with one or two exceptions) are in a most unsatisfactory position. They have plenty of orders on their books, but the buyers are not in a position to take deliveries, so that nothing can be done until they are ready. Those who cater to a smaller class of trade manage to run pretty full, as they are constant buyers week by week, and while orders have not accumulated, they are received often enough to insure steady work at the mills. There is no big work coming out at present, but on the whole business keeps up to the average of the past several weeks. Prices show no improvement, however, and on large lots are made considerably lower than quoted for small lots, which are as follows:

Grooved Skelp, delivered.	1.47½¢ @	1.50¢
Best Refined Bars.....	1.52½¢ @	1.55¢
At interior points.....	1.40¢ @	1.50¢
Tank Steel.....	1.55¢ @	1.60¢
Heavy Plates.....	1.60¢ @	1.65¢
Shell.....	1.70¢ @	1.80¢
Flange.....	1.90¢ @	2.00¢
Angles.....	1.65¢ @	1.70¢
Beams and Channels.....	1.75¢ @	1.90¢

**Old Material.**—The demand is somewhat better, but with large supplies it is difficult to secure satisfactory prices. General quotations are about as follows:

No. 1 Wrought Scrap, delivered.....	\$12.00 @	\$13.00
Machinery Cast, delivered.....	10.00 @	11.00
Heavy Steel Scrap, delivered.....	12.00 @	13.00
Old Iron Rails, delivered.....	14.00 @	14.50
Old Street Rails, delivered.....	15.50 @	16.00
Wrought Turnings, delivered.....	10.00 @	11.00
Cast Borings, delivered.....	6.00 @	7.00
No. 2 Light Scrap.....	6.00 @	7.00

Louis R. Baldwin, until recently with the late H. W. Middleton, has established himself in business on his own account at Room 5, 205 Walnut place. Mr. Baldwin has had a considerable experience in the trade, and will make a specialty of Iron, Steel, Nails and General Railroad and Mine Supplies.

## St. Louis.

(By Telegraph.)

Office of *The Iron Age*,  
Bank of Commerce Building,  
St. Louis, November 15, 1893.

**Pig Iron.**—A general feeling of improvement is noted and inquiries are more frequent. Prices have been advanced 25¢ per ton on Nos. 1, 2 and 3 Foundry, and nearly all the leading furnaces are holding firm at the advance. Locally the demand is not urgent, but consumers who have Iron due them are taking it more regularly than heretofore. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry.....	\$13.25 @	\$13.50
Southern Coke, No. 2 Foundry.....	11.50 @	11.75

Southern Coke, No. 3 Foundry.....	10.75 @	11.00
Southern Gray Forge.....	10.25 @	11.50
Southern Car Wheel.....	17.25 @	18.25
Lake Superior Car Wheel.....	16.50 @	17.00
Ohio Softeners.....	16.00 @	16.50

**Bar Iron.**—The jobbing trade is quite brisk and 1.75¢ from store is well maintained. Mills quote 1.45¢ @ 1.50¢ for carload lots, half extras, f.o.b. cars East St. Louis.

**Barb Wire.**—The improvement noted last week continues the feature of this department. Mills quote Painted at \$2 @ \$2.05 and Galvanized at \$2.40 @ \$2.45. Jobbers ask \$2.10 @ \$2.15 for Painted, with the usual advance for Galvanized.

**Wire Nails.**—The Nail market does not appear as weak as last reported and there continues to be a fair amount of business doing. Mills quote \$1.40 for carload lots to jobbers. Smaller lots are quoted at \$1.45 @ \$1.55, according to quantity.

**Rails and Track Supplies.**—There has been quite an improvement in the demand for Track Supplies, which are firmer in consequence. We quote as follows: Splice Bars, 1.65¢ @ 1.70¢; Spikes, 2¢ @ 2.05¢; Bolts, Square Nuts, 2.50¢; with Hexagon Nuts, 2.60¢. Steel Rails are dull at \$24.50 @ \$25. Old Iron Rails are nominally \$14.

**Pig Lead.**—Acting under the improved condition of the New York market this metal is higher. Sales of several hundred tons were made at 3.15¢ @ 3.20¢, and 75 tons were placed today at 3.22½¢. At the close today 3.22½¢ was bid; sellers are asking 3.25¢.

**Spelter.**—This metal is a trifle firmer, in sympathy with Lead. Sellers ask 3.40¢, but consumers continue to buy sparingly, and any rapid improvement seems out of the question.

## Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street,  
CHICAGO, November 15, 1893.

More business is now doing in nearly every line of finished material except for Structural work, in which the demand is light owing to the close of the building season. Orders are improving in a marked degree from the railroads. These orders are small, showing that they are for absolute requirements, but they are numerous and steady, which is in marked contrast with the quietness of this class of business for several months.

**Pig Iron.**—The most important event of the past week was the decline in Southern freight rates of 20¢ per ton, making the existing rate \$3.65 from Birmingham. It only applies to Chicago business and was done by the Ohio River lines and not by the railroads further South. It is expected that this reduction will only be temporary, but it has had the effect of reducing prices all along the line. It has not yet had the result of increasing sales, but it would be natural that buyers should take advantage of it as soon as the fact becomes generally known. The demand for Southern Iron for the past week has only been for small lots, although there are some inquiries for round lots which it is hoped may result in transactions at an early day. Business on local Coke Iron has been fair, but no heavy sales have taken place. The quotations made on this class of Iron are for small lots only. Concessions are given on sales of any size and

in direct competition with Southern Iron prices are made to take the business. Sales are reported of several hundred ton lots of Lake Superior Charcoal Iron and one inquiry is in the market for 500 tons. Quotations are now as follows for cash:

Lake Superior Charcoal.....	\$16.00 @	\$16.50
Local Coke Foundry, No. 1....	13.50 @	14.00
Local Coke Foundry, No. 2....	12.75 @	13.00
Local Coke Foundry, No. 3....	12.25 @	12.75
Local Scotch.....	14.00 @	14.50
Ohio Strong Softeners No. 1....	15.50 @	16.00
Southern Silvery, No. 1.....	@	14.25
Southern Silvery, No. 2.....	@	13.75
Southern Coke, No. 2.....	11.85 @	12.10
Southern Coke, No. 3.....	11.10 @	11.35
Southern, No. 1, Soft.....	11.85 @	12.10
Southern, No. 2, Soft.....	11.10 @	11.35
Tennessee Charcoal, No. 1....	16.00 @	16.50
Southern Gray Forge.....	10.60 @	10.85
Alabama Car Wheel.....	18.25 @	18.50
Jackson County Silvery.....	16.50 @	17.00
Other Ohio Silvery.....	15.00 @	15.50

**Bars.**—The volume of business is steadily increasing. Manufacturers' agents who have recently tested the market by circulars report that they have brought in numerous inquiries and some orders. The outlook indicates a continued buying movement in this line, and there are some good sized orders in sight. Prices are hardly as firm as they were a week since on account of the efforts being made by mills which are now starting up to get their order books comfortably filled. Prices on Bar Iron range from 1.37½¢ to 1.45¢, Chicago, according to the location of the mill. The Valley mills are endeavoring to maintain their base price of 1.30¢ at mill. Competition is brisk on Soft Steel and prices range from 1.45¢ to 1.55¢, Chicago, according to the specification. Jobbers report a better business, with an improving demand from the small manufacturers. They quote from stock 1.60¢ @ 1.70¢ on Bar Iron and 1.65¢ @ 1.70¢ on Soft Steel Bars.

**Structural Material.**—The demand for Beams is light in consequence of the gradual cessation of building operations. Rumors are current of much lower prices than have been hitherto named in this locality. The bridge works are purchasing moderate quantities of Shapes, but the demand in that direction can hardly be called active. Quotations are as follows, Chicago delivery: Beams, 1.65¢ @ 1.75¢; Tees, 1.90¢ @ 2¢; Angles and Universal Plates, 1.60¢ @ 1.65¢. Small lots are sold from stock at an advance of 10¢ @ 15¢ per 100 above those prices.

**Plates.**—Mill agents report light inquiries, but merchants are experiencing an improvement in business and report much better sales from stock. Boiler makers are doing a little more than they have been, which causes an improved demand for Boiler Plates. Mill shipments, Chicago delivery, are quoted as follows: Tank Steel, 1.62½¢ @ 1.70¢; Shell Steel, 1.82½¢ @ 1.90¢; Flange Steel, 2.2½¢ @ 2.10¢; Fire Box, 2.75¢ @ 5¢. Store prices now prevail as follows: Iron or Steel Sheets, Nos. 10 to 14, 2.25¢ @ 2.40¢; Tank Steel, 2.10¢ @ 2.20¢; Shell Steel, 2.20¢ @ 2.40¢; Flange Steel, 2.50¢ @ 2.65¢; Boiler Tubes, 70 and 5 % off.

**Sheets.**—Not much new business is reported, but the recent ravages of fire among Sheet mills have made it necessary for contracts to be replaced, and this has brought up several transactions which otherwise would not have taken place. No. 27 Common Sheet Iron is still quoted at 2.75¢, Chicago, for mill shipment, but this is shaded by some manufacturers. Small lots from stock are selling at 2.90¢ @ 3¢. Galvanized Iron continues in good demand. The mills in operation are now so well sold

up that agents believe prices can shortly be advanced. The best brands are selling at about 70 and 10 % off for Juniata, but less known brands may yet be purchased at 70 % off. Small lots from stock are quoted at 70 % @ 70 and 5 % off. Sheet Copper is weaker from stock, small lots being sold at 30 % off, while manufacturers quote 35 % off for large lots.

**Merchant Steel.**—Cheerful reports continue to be received from representatives of this branch. Contracts are steadily being made for season deliveries and specification are coming in fairly well on old orders and values are well maintained. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery, Tire and Open Hearth Spring Steel, 1.90¢ @ 2¢; Ordinary Bessemer Machinery, 1.60¢ @ 1.65¢; Ordinary Bessemer Tire, 1.55¢ @ 1.60¢; Ordinary Tool Steel, 6¢ @ 7¢; Specials, 12¢ and upward.

**Steel Billets.**—Considerable inquiry is reported for deliveries extending into February. Quotations range from \$19.25 to \$19.50, Joliet, according to specifications, for 4 x 4 inch. The Joliet mill will resume operations on the 20th.

**Rails and Track Supplies.**—The drop in the Eastern price of standard Steel Rails is not yet reflected in quotations in this market. The railroads are making inquiries as to how prices here will be affected, but so far they have not asked for quotations on specified quantities and it may be some time before they decide to enter the market as purchasers. There are rumors of a sale of 5000 tons to a Texas road by an Eastern mill at a very low price. Quotations are confined to small quantities, on which the price is made \$27 @ \$28, according to the customer. Iron and Steel Splice Bars are quoted at 1.50¢ @ 1.55¢; Track Bolts with Hexagon Nuts, 2.55¢ @ 2.60¢; Spikes, 1.90¢ @ 1.95¢, according to quantity.

**Old Rails and Car Wheels.**—Nothing has been doing lately in Old Iron Rails, but the railroads are offering large quantities, and seem desirous of selling them. They ask \$14 75, which buyers refuse to pay. Old Steel Rails have sold recently at \$10 50 for long lengths. Short pieces are quoted at \$8.50, but holders are trying to get more money. Old Car Wheels are extremely quiet, with large lots probably worth about \$11, and single carloads \$13 to \$14.

**Scrap.**—Quite a fair demand is noted for various kinds of Old Material; even Malleable Cast is again in demand, after having been neglected for a long time. Steel Scrap is very quiet. Dealers' selling prices, net ton, are as follows: No. 1 Forge, \$10; No. 1 Mill, \$8; Sheet Iron, \$4.50; Pipes and Flues, \$8; Axles, \$16; Horseshoes, \$11; Fish Plates, \$12; Spikes and Bolts, \$10; Cast Borings, \$4.50; Wrought Turnings, \$6.50; Axle Turnings, \$8; Heavy Cast, \$9.50; Stove Plate, \$7.75; Malleable Cast, \$8; Mixed Steel, \$7, gross ton; Leaf Steel, \$14 50.

**Metals.**—A little better business is reported for Lake Copper and prices are firm but unchanged at 10 3/4¢ for carloads. Leading casting brands are held at 9 1/4¢, notwithstanding sales of less known brands at somewhat lower figures. Spelter is firm at 3.50¢. A good business has been done in Pig Lead, sales having been made of about 600 tons within the week. It is quoted at 3 30¢ @ 3.35¢, according to quantity.

## Pittsburgh.

(By Mail.)

Office of *The Iron Age*, Hamilton Building, Pittsburgh, November 14, 1893.

The break in the price of Rails has been the main topic of discussion in the Iron and Steel trades here during the past week, and it is the opinion that it will have a good effect on trade in general and the Steel trade in particular. At different times during the past two years the Edgar Thomson Steel Works and several Eastern plants were put on Billets when there were no Rail orders to be had, the inevitable result being a material weakening in the price of Billets, or at best checking any advance in prices that would possibly have taken place. If the lowered price of Rails should serve to keep the mills fairly well employed, the Steel market will undoubtedly be materially benefited. During the week reports of offers to sell Rails on the basis of \$20 at mill have been current here. For the first time in its history the Amalgamated Association has issued a call for a second convention in one year and which will be held in this city, commencing on Thursday morning, the 16th inst. At this meeting some important business will be brought up for consideration. The request of the Sheet manufacturers for a reduction of 10 % on the present scale, also the request of the Mahoning Valley mills for a reduction of wages in the finishing departments to correspond with similar reductions made by the National Union of Iron and Steel Workers, and the request of the Valley mills for a \$4.50 per ton puddling rate, will be brought up for action. The question of making the Amalgamated Association wage scale a continuous one will also be considered, and, altogether, the session promises to be one of the most important in the history of the Amalgamated Association. The week under review showed no material changes in the condition of the Iron and Steel trades. The demand is undoubtedly much improved, but prices are as low as ever.

**Pig Iron.**—We can report a perceptible improvement in demand for both Bessemer and Gray Forge Iron. A number of sales have been closed within the past week, and \$11.25, Pittsburgh, for Bessemer and \$10.50 for Gray Forge are being closely observed, while some of the Valley furnaces are holding Bessemer at \$10.75 at furnace, equal to \$11.35, Pittsburgh, and are getting it. While stocks of Pig Iron at furnaces are large, the increased demand for Steel and the prospect of some business in Rails is expected to lead to a material lessening of stocks before this year is out. The uncertainty existing as to what price will have to be paid for Coke after December 31 next, on which date a good many contracts expire, is having the effect of making furnace operators unwilling to accept contracts for Iron for delivery very far into next year at present prices. Taking all these facts into consideration, it is not unreasonable to believe that prices of Bessemer and Gray Forge cannot well go much, if any, lower than they are to-day. We repeat quotations of last week, as follows:

Neutral Gray Forge...	\$10.50 @ \$10.75	cash
All-Ore Mill.....	10.75 @ 11.00	"
Bessemer .....	11.25 @ 11.50	"
No. 1 Foundry .....	12.50 @ 13.00	"
No. 2 Foundry.....	11.50 @ 12.00	"

While our lower quotation on Bessemer has been slightly shaded in several instances, it has been in cases where terms

were equivalent to spot cash. We note a sale of 1000 tons of Bessemer for November at \$11.25, Pittsburgh, and one of 1500 tons of Gray Forge for November and December at \$10.50, Pittsburgh.

**Ferromanganese.**—We quote domestic at \$52.50 @ \$53, delivered. The demand is reported as improving, owing to the increased demand for Steel.

**Muck Bars.**—There is a better demand, owing to the starting up of a number of mills. We are advised of two or three sales involving about 1000 tons for delivery this year at \$21, @ \$21.15, delivered at buyer's mill. Some off grades of Muck Bar can be had at prices slightly lower than the above.

**Billets.**—The demand continues fairly active, and it is claimed that enough business has been booked and is in sight to insure fair activity among the mills for the balance of this year. Steel makers are apparently well satisfied over the break in the price of Rails, as it is expected to favorably affect the market by largely removing the chances of the Rail mills making Billets for some little time at least. During the week under review a number of orders calling for from 500 to 1500 tons have been placed, and it is understood that two or three contracts involving some 8000 or 10,000 tons are pending and may be closed this week. We quote the market at \$17 25 @ \$17.50, with the last named as the ruling price. A good order for Rod Billets with favorable terms of settlement would probably be accepted at our lower quotation.

**Steel Rails.**—Owing to the many rumors in circulation it is next to impossible to give a quotation on Rails that would be reliable. It is claimed that offers to sell on the basis of \$20 at mill have been recently made. Owing to the open hostility now existing between Eastern and Western mills it is not unfair to assume that even this price would be shaded if necessary.

**Structural Material.**—Pittsburgh is reported to have taken a fairly large order for Beams and Channels to be used in a large office building now under construction in a Western city. There continues to be a fair run of small orders, with several large contracts in sight, which are expected to be closed before the year is out. We repeat quotations of last week, as follows: Beams up to 15 inches, 1.50¢ @ 1.60¢; Angles and Universal Plates, 1.60¢ @ 1.65¢; Tees, 1.75¢. It is expected that the plant of the Columbia Iron & Steel Company will be offered at public sale in a short time. This is claimed to be one of the best equipped mills in the country for the production of Structural Material.

**Plates.**—The demand has shown slight improvement lately, although prices are as low as ever. Tank Steel is in fairly good demand, some fair sized orders having been placed last week. We quote as follows: Tank, 1.40¢ @ 1.45¢; Shell, 1.60¢ @ 1.75¢; Flange, 1.65¢ @ 1.75¢; Fire Box, medium quality, 2.50¢ @ 3¢, best quality, 3.50¢ @ 4¢. For round lots the above prices continue to be shaded to some extent.

**Wire Rods.**—Beyond the fact that there are inquiries in the market for several round lots there is nothing of interest to note. However, as the views of makers and buyers on prices on the above are pretty far apart, there is not much prospect of the business being closed at an early date. We quote at

\$25.50 at maker's mill, and under favorable conditions this price would be shaded.

**Bars.**—There is a fair amount of business, the heavier demand being for Steel Bars owing to their being obtainable at about the same price as Iron Bars. We quote Steel Bars at 1.30¢ @ 1.40¢, according to order, with Bar Iron extras. In the Valley Bars are quoted at 1.30¢ @ 1.35¢, half extras. The Valley mills have not yet started up, agreeing to remain idle until Monday, the 20th inst., in order to allow the Amalgamated Association to prepare a new wage scale, and also to consider the offer of the manufacturers to pay \$4 50 ¢ ton for puddling.

**Barb Wire.**—The demand continues light, and will not show improvement until buyers commence to place their orders for spring delivery. It should be noted that makers have refused to contract for delivery next year at present ruling prices. We continue to quote Four-Point Galvanized at \$2.20 in carload lots at mill, with the usual advances for less quantities. There is a good demand for Plain Wire, which may be quoted at \$1.50 @ \$1.60 for Nos. 6 to 9, in carload lots.

**Wire Nails.**—There is nothing new to report. There is a good demand, with prices unchanged. We quote at \$1.25 in carload lots at mill. For round lots this price would be slightly shaded. Cut Nails are also in fair demand, with prices ruling at \$1 at mill, with the usual averages.

**Pipes and Tubes.**—The situation is unchanged, the demand being light and none of the mills employed to full capacity. Prices continue low, although makers hope for an improvement before long.

**Connellsville Coke.**—During the week ending Saturday, November 4, there were 5960 ovens in the Connellsville region in blast, and 11,530 idle, with a total estimated production for the week of 55,280 tons. Compared with the previous week this was a net gain of 228 active ovens and an increase in production of 2965 tons. Prices are unchanged, on the basis of \$1.10 for Furnace Coke, in tons of 2000 lb, f.o.b. cars at oven, and \$1 50 for Foundry Coke to dealers and \$1.65 to consumers. Coke makers confidently expect a better demand for Furnace Coke between now and the first of the year, owing to the starting up of a number of blast furnaces that have been idle for some time, and owing to the better outlook in the Rail trade, which will, of course, lead to increased production of Bessemer Pig Iron.

## Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts., CINCINNATI, November 15, 1893. }

That there has been a large increase in the volume of business in Pig Iron during the past week is gratifying, but that there has been no improvement in prices is not what was confidently expected. The sales aggregate upward of 50,000 tons, and were chiefly of No. 2 Soft, No. 3 Foundry and Gray Forge, on the basis of \$8 ¢ ton, f.o.b. Birmingham, for No. 2 Foundry; \$7.50, and in some instances \$7.40, for No. 3 Foundry, and \$7 ¢ ton for Gray Forge. The purchases were made by Iron Pipe works in the East, in the West and in the South, and are for deliveries running to next May. It seems that these

Pipe works have secured some orders for Iron Pipe at low prices, and held off from buying raw material as long as possible, so that when these trades were closed it was necessary in some instances to telegraph the furnaces to make prompt shipments. That all of these orders came upon the market about the same time may be a coincidence or it may be by design, but the Pipe works have obtained work for the winter by making low prices for Pipe, and the furnaces, while furnishing the raw material at low rates, secured some business on which there cannot be much profit. Other than these orders there has not been much business, but there is about the usual run of orders from the jobbing foundries, but Charcoal Iron is exceptionally dull, and there are free offerings of No. 2 Foundry. There continue to be fair deliveries on old contracts. Collections are all that could be desired. Quotations are as follows:

### Foundry.

Southern Coke, No. 1.....	\$12.75 @	\$13.00
Southern Coke, No. 2.....	10.75 @	11.00
Southern Coke, No. 3.....	10.25 @	10.50
Ohio Soft Stone Coal, No. 1.....	15.50 @	16.00
Ohio Soft Stone Coal, No. 2.....	14.50 @	14.75
Lake Superior Coke, No. 1.....	15.00 @	15.25
Lake Superior Coke, No. 2.....	14.00 @	14.25
Hanging Rock Charcoal, No. 1.....	18.50 @	19.00
Hanging Rock Charcoal, No. 2.....	17.50 @	18.00
Tennessee Charcoal, No. 1.....	14.00 @	14.25
Tennessee Charcoal, No. 2.....	13.00 @	13.25

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	17.75 @	18.00
Lake Superior Car Wheel and Malleable.....	17.00 @	17.25

### Forge.

Gray Forge.....	9.75 @	10.00
Mottled Coke.....	9.50 @	9.75

## Metal Market.

**Copper.**—Current report has it that the Calumet & Hecla Company have effected a large sale. No particulars were divulged as to the quantity of metal involved, as to the price paid or whether home consumers or exporters, or both, were the buyers. That there has been a deal is the fact, however, since the company referred to have refused subsequent orders for deliveries this year, while other producers have marked their price up to 10¢. Other descriptions are also held higher, or say 9½¢ for Electrolytic and 9½¢ for ordinary casting stock, but the intimation was given in some quarters that desirable orders for the cheaper varieties would have been taken at some concession from those figures. James Lewis & Sons, in circular of November 1, remark as follows regarding American Copper: "The export to Europe continues on a very large scale, that for the last four months exceeding the total quantity previously allowed for 12 months by about 10%. Chief part of this enormous export has gone to Germany, where it seems to have been readily absorbed. A further sale of 1500 tons of Lake Copper is reported to have been made for export, while a large quantity of Anaconda Matte has been sold to American smelters on better terms than are obtainable here."

**Pig Tin.**—The level of prices has been lower and the market characterized by depression during the greater portion of the week. No great amount of Tin came out, but there proved to have been enough to force values down to 20.30¢ @ 20.35¢ for prompt and immediate future delivery. Speculative manipulation, it is alleged, played some part in the turn, but the force of an alleged large "invisible" supply is claimed to have been a factor of some

weight, and there is more than a vague possibility that the steady depreciation in London prices has had a certain amount of unfavorable influence. In any event the movement of prices continues very perplexing to the general buyer, as also the fact that the range is lower at the present time than it was a year ago. Toward the close of the week under review bids were raised to 20.40¢ for prompt and 20 50¢ for November delivery. Straits shipments during first half of November, as per Metal Exchange advices, were 1175 tons, including 700 tons to Great Britain and the United States and 475 tons to the Continent. Total shipments during the corresponding period last year were 1475 tons.

**Pig Lead.**—The market is decidedly firmer, but at the higher range of prices there is hardly any buying on the part of home consumers. In other words, it looks very much like a speculative movement with the more aggressive operators well fortified. One strong point is that late low prices have checked production and prevented any serious accumulation of the metal at first hands, while operating to increase the consumption. The export of 90% of the Lead made from Mexican ores and facilities for livelier work in that direction have a certain amount of influence in quarters where the real situation is understood. There are rumors of falling off in Australian production and certain facts connected therewith suggest that export movement from this country may be heavier later on. Prompt and current month deliveries have been sold at 3.37½¢ @ 3.40¢. Speculative bids were made of as high as 3.42½¢ for December, 3.45¢ for January and 3.47½¢ for February delivery.

**Spelter.**—None but ordinary sales on home account have been made in this quarter the past week, and the demand has continued slow. Such as they were, however, the orders were difficult to execute, since most replies from smelters virtually amounted to a refusal to sell for delivery during the next six weeks. The presumption is that the bulk of stock is in second hands. There were intimations of a "short" interest in the market. The nominal quotation at the close was 3.70¢ @ 3.75¢ for ordinary brands.

**Tin Plate.**—Orders for futures have dropped off to very moderate proportions, and buyers' views seem to have been moderated also. Spot business has not exceeded ordinary proportions, nor have ordinary out of town inquiries been hardly up to the average. Prices are somewhat uneven, yet show no radical change. Spot quotations are as follows: Coke Tins—Penlan grade, IC, 14 x 20, \$5.30; J. B. grade, do., \$5.35; Bessemer full weight, \$5.35; light weights, \$4.95 for 100 lb, \$4.85 for 95 lb, \$4.70 @ \$4.75 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.65; IX basis, \$6.75 @ \$7. Charcoals—Melyn grade, IC, \$6.37½ @ \$6.50; Crosses, \$8; Allaway grade, IC, \$5.60; Crosses, \$6.75; Grange grade, IC, \$5.75; Crosses, \$6.85. Charcoal Ternes—Worcester, 14 x 20, scarce; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.50; do., 20 x 28, \$14.75; Dean grade, 14 x 20, \$5.35; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.15; do., 20 x 28, \$10.10; Alyn, 14 x 20, \$5.32½ @ \$5.35; do., 20 x 28, \$10.40; Wasters—S. T. P. grade, 14 x 20, \$4.75;

do., 20 x 28, \$9; Abercarne grade, 14 x 20, \$4.60; do., 20 x 28, \$8.87½.

The Metallgesellschaft of Frankfurt, a. M., Germany, whose agents in this country are the American Metal Company, 80 Wall street, have issued a pamphlet bearing on the statistics of Lead, Copper, Zinc and Tin for the years 1890-92. It covers the world's production of these metals and the import and export statistics of the leading industrial nations and is the most complete presentation yet made on the subject.

## Financial.

The week has been, on the whole, a tame one in financial circles. No developments of any magnitude have opened out in any one quarter, and our last week's review might, in its general features, be reprinted at this writing, and fairly stand for a presentation of the existing situation. That business is slowly but surely improving all along the line is evident from the marked increase in the volume of bank exchanges and from the increased demand for manufactured products represented by trade reports throughout the country as having taken place within the past week, or since the recent elections. The removal of the silver question as a disturbing factor and the settlement of the currency on a sound basis appear to have induced a distinct improvement in the business feeling of the East and South in particular. Among other interests the dry goods trade is showing a more favorable aspect. Many manufacturing establishments are announced as being busy or expanding and others have recently resumed or are about to resume operations. In nearly every line, in short, some improvement is noted, although, perhaps, not sufficient to satisfy the too sanguine expectations of those who looked for an immediate and universal revival to follow on the passage of the repeal bill. As we have previously pointed out, the reflux of the tide of business activity from the depths of depression which it reached this year must necessarily be a somewhat prolonged operation. Moreover, the anticipation of tariff changes has very probably much to do with the slowness of recovery; and until that question is decided a complete return of confidence and active enterprise cannot, in reason, be expected. It may be said, however, that the recovery which began with the month continues with steadily increasing force, and, in the opinion of competent judges, its ratio is no less than should have been counted on when a reasonable view of all the existing conditions is taken.

Railway earnings, which are so unfailing a gauge of the business condition, are being watched with interest. These showed a decided change for the better in the month of October over the preceding month, and although the cessation of World's Fair traffic during the present month has caused a contraction in the receipts of several roads, the returns of earnings in general make a better showing than was generally expected. Hopeful views are taken of the future in this interest, as the increasing demand for produce and for stocks of goods, which is now developing, will, it is believed, tend largely to increase the demand for freight transportation in the near future. The

great curtailment of production during the past few months, coupled with a steady consumption during that time, has necessarily reduced stocks of all kinds in the interior to the lowest ebb. Before long these must be replenished; and the railways will be the gainers.

Money, meanwhile, continues to accumulate rapidly at the chief centers of reserve, and the question is, what will be done with this great amount of funds? The public shows as yet little or no interest in investments on the Stock Exchange, although there has been, it is true, a considerably increased demand of late for the better class of bonds, and it is not likely that much will be done in this way until it becomes clear that trade is once more on a normal basis. When this occurs, however, the abundance of money in reserve will have a decidedly important effect on speculation. Saturday's bank statement showed a further increase in the surplus reserves of nearly \$8,000,000, bringing the holdings of the banks up to nearly \$58,000,000 above legal requirements. The loans, meanwhile, increased only \$600,000. This great accumulation of money is evidence that hoarding is over, and that, to that extent at least, confidence has been restored.

The money market shows no material change. Money on call continues in abundant supply at easy rates, the offering being, however, considerably above the demand, although that shows some increase in consequence of the recent expansion of business. Business has been done from 1% to 2%, the average being at 1½%. Time loans are liberally offered by banks and trust companies at easy rates; but, as in the case of call loans, the supply far exceeds the demand. Rates usually quoted are 3% for 90 days, 3½% @ 4% for 6 to 9 months, on dividend paying securities. A good deal of business is reported in commercial paper, which is being bought by both city and country banks at about 4½% @ 5% for choice indorsed receivable, 5% @ 6% for lesser known names, and 6% for best single names.

The stock market has had a week of monotony, speculation being at a low ebb. The public has been entirely out of the market for reasons before mentioned, and such business as has passed has been entirely professional and on an exceedingly narrow scale. The tendency of prices, on the whole, has been to decline, but, except in a few cases, the changes of the week have been relatively unimportant, rarely exceeding 1%. American Sugar Refinery stocks were the object of bear attacks on Monday, which caused a break of nearly 4 points in that stock. As the manipulation of sugar certificates has been one of the inexplicable features of the stock market for months the break was not believed to bear any special significance. The market during the early part of the current week has been languid and irregular, closing on Wednesday with a little firmer tone. The news of the assignment of the Thurber-Whyland Company, a great New York grocery house, on Tuesday, had a depressing effect on some of the industrials. New England was weak and sold down sharply on Saturday on rumors of aggressive action against the McLeod schemes. General Electric was another victim of the "bear" faction. Otherwise no fluctuations of any importance were reported. The following list shows the extreme fluctuations of some of the active stocks during the week, with their closing price on November 15:

	High- est.	Low- est.	Closing. Nov. 15.
Am. Sugar Ref.	102½	98½	98½
Atchison, T. & S. P.	20½	18½	18½
Balt. & Ohio	71	70½	70½
Chicago Gas	63½	59½	60½
Chic., B. & Q.	82½	80½	80½
Chic., Mil. & St. Paul	65½	62½	62½
Chic., Rock Isl. & Pac.	68	65½	66½
Del. & Hudson	133½	130	130
Del., Lack & Western	172½	168	168
Gen. Electric	45½	41½	41½
Lake Shore	128½	127	127
Louisville & Nashville	48½	46½	47
Manhattan	133	127½	127
Missouri Pacific	25½	23½	24
Minnesota Iron, asked			40
National Lead, Common	27½	25½	26
New Jersey Central	119½	115½	115½
New York Central	103	101	101
N. Y., L. E. & Western	14½	13½	13½
Northern Pacific, Pfd.	22	20½	20½
Philadelphia & Reading	23	20½	22½
Richmond & West Pt., Term.	3½	3¼	3½
St. Paul & Omaha	37½	36½	36½
Union Pacific	18	17	17½
Western Union	89½	86½	86½

Government bonds, which were firm during the early part of the week, declined 1% for 2s registered on Tuesday, when there was a sale of \$20,000 at 25½. The 4s show a fractional advance. Latest quotations were as follows:

	Bid.	Asked.
2s, 1891, registered	94	.....
4s, registered	112½	113
4s, coupon	112½	113

Railway and miscellaneous bonds have been firmer and in fairly large demand.

The market for sterling exchange has been firm, owing to a scarcity of bills early in the week and a slight decline in discount in the London market. Actual business was done at the close on Wednesday at \$4.82 @ \$4.82½ for 60 days; \$4.84½ @ \$4.84½ for demand; \$4.84½ @ \$4.85 for cables and \$4.81 for commercial. Domestic exchange on New York is quoted as follows: New Orleans, commercial 75 discount, bank par; Charleston, buying ½ discount, selling par; San Francisco, sight 5, telegraph 10 premium; Savannah, buying par; selling ½ premium; Chicago, 75 @ 80 premium; St. Louis, 75 premium.

Bar silver has declined in London to 32 pence, and in New York to 69½¢ per ounce. Some large shipments of the metal have been made during the week.

## New York.

Office of *The Iron Age*, 96-102 Reade street, New York, November 15, 1893.

**Pig Iron.**—A very encouraging feature, so far as the consumption of Pig Iron is concerned, is the appearance of a number of large orders for Cast Iron Pipe. Through Warren, Wood & Co. of this city, the Chattanooga Pipe & Foundry Company secured the order for 6700 tons of Pipe for Waterbury, Conn., at \$23.52, delivered, per gross ton. The Howard Harrison Company of Bessemer, Ala., captured about 8000 tons of the 48-inch Pipe for Philadelphia at \$24.12 per gross ton, delivered on the streets, the balance of the order, about 16,000 tons, going to Eastern shops. About 1800 tons has been closed for Burlington, Vt., and a good lot is coming up in Northern New York. We quote: Northern brands, \$14 @ \$15 for No. 1; \$13 @ \$14.25 for No. 2; \$12.25 @ \$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$13 @ \$14 for No. 1; \$12 @ \$13 for No. 2; \$11.50 @ \$12.25 for No. 3; \$11.75 @ \$12.25 for No. 2 Soft, and \$12.25 @ \$12.50 for No. 1 Soft. Gray Forge is \$11.25 @ \$12.

**Spiegeleisen and Ferromanganese.**—No business of any consequence is recorded. Inquiries from England indicate that stories are afloat there of shipments of American Ferromanganese to the English market. Since Ferro is selling, f.o.b. Liverpool, at about \$46, while domestic is quoted at Pittsburgh at \$52.50, the absurdity of reports indicating a chance to do a regular business is evident. We quote: Foreign Spiegeleisen, nominally, for 10 % @ 12 %, \$21.50 @ \$22, and 20 %, \$25.50 @ \$26, on cars, Jersey City, and Ferromanganese, \$55 @ \$55 50.

**Billets and Rods.**—No sales of any consequence are reported in this market. We quote nominally: Domestic Billets, \$20.25 @ \$22.50, and foreign Billets, \$28 @ \$28.50, tidewater; domestic Wire Rods, \$28 @ \$29, and foreign Rods, \$39.50 @ \$40, tidewater.

**Steel Rails.**—A good many contradictory stories are afloat, and little that has appeared in the daily newspapers relating to the situation is correct. The sale of 15,000 tons to an Eastern road credited by Pittsburgh dispatches to the Maryland Steel Company was not made by that mill. Pittsburgh advices indicate that \$20 at mill there might be accepted. A good deal of quiet negotiating is going on, but we cannot learn that any business has been transacted. Buyers are not taking hold thus far. We quote \$23.50 @ \$24 at Eastern mill.

**Track Material.**—Small lots are selling at the following prices: Spikes, 1.80¢ @ 1.90¢; Fish Plates, 1.40¢ @ 1.60¢; Track Bolts, Square Nuts, 2.25¢ @ 2.40¢, and Hexagon Nuts, 2.40¢ @ 2.50¢, delivered. Concessions would be made for round lots.

**Manufactured Iron and Steel.**—The contracts for Structural Material for three buildings alluded to recently involving about 5000 tons have been closed, Western mills taking the business. There are only small orders going in Plates. We quote nominally: Beams up to 15-inch, 1.70¢ @ 2¢; 20-inch, 2¢ @ 2.25¢, for round lots; Angles, 1.75¢ @ 1.90¢; Universal Mill Plates, 1.60¢ @ 1.75¢; Tees, 2¢ @ 2.15¢; Channels, 1.70¢ @ 2¢, on dock. Steel Plates are 1.60¢ @ 1.70¢ for Tank; 1.75¢ @ 1.90¢ for Shell; 2¢ @ 2.15¢ for Flange, and 2.50¢ @ 2.80¢ for Fire Box, on dock; Refined Bars are 1.50¢ @ 1.9¢, on dock, and Common, 1.40¢ @ 1.50¢; Soft Steel Bars are 1.50¢ @ 1.70¢; Scrap Axles are quotable at 1.70¢ @ 2¢, delivered; Steel Axles, 1.70¢ @ 1.90¢, and Links and Pins, 1.70¢ @ 1.80¢; Steel Hoops, 1.75¢ @ 1.90¢, delivered; Cotton Ties, 70¢ @ 72½¢ @ 45-lb bundle, at mill.

**Old Material.**—Old Iron Rails are nominally at \$13 @ \$14; Old Steel Rails, \$8 @ \$9, and Wrought Scrap, \$9 @ \$11.

Warren, Wood & Co., Pig Iron merchants, Boreel Building, are introducing the Spathite Pig Iron, with which excellent results have been obtained.

The Frasse Company, 19 Warren street, are putting on the market Poldi Steel. No. 0 is a special for tools used on fast running works, such as screw machinery. They also have a self hardening Steel, Gold Label, No. 00.

The first carload of material, consisting of black sheets, turned out at the new plant of the New Castle Steel & Tin Plate Company, at New Castle, Pa., was shipped to Chicago on Thurs-

day the 2d inst., the statement that this product consisted of tinned plate being incorrect. As yet no product has been tinned by the above concern, but as soon as a sufficient supply of black sheets has been made the tinning department will be put in operation. The firm expect to send out in a short time printed matter giving full information regarding the different brands of tin andterne plate which they propose to manufacture and other information of interest to the trade.

## British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, November 15, 1893.

In the price of Pig Tin for prompt delivery there has been a decline to £75. 10/, and the market has shown irregular, weak form. Demand early in the week was freely met by large dealers. This with general uncertainty impaired confidence. Later a slight improvement took place on covering of "short" sales, but unfavorable Eastern advices caused a further decline. At the close the market was weak under free selling of futures, with £75. 10/ @ £75. 12/6 quoted for prompts, and £76. 7/6 @ £76. 10/ for futures.

Copper has undergone little change. Early in the week there was a slight advance in prices, due to reports of purchases for American accounts, but liberal offering by importers, and some selling by tired outside holders, caused a reaction. The same conditions prevailed up to the close of the week, with transactions small and outside interest very light. Last quotations were £42. 2/6 for Merchant Bars, prompt, and £42. 12/6 for futures, and £46. 5/ for Best Selected English.

There has been no improvement in the Tin Plate market. From the Continent there is a little more inquiry, but as the expected demand from the United States was not realized buyers became reserved and purchased only as immediate orders required. Black Plate is scarce and £8. 5/ is now quoted at Swansea. The Cynon Works have been closed down. Stocks at Swansea are now about 265,000 boxes. Liverpool quotations were as follows:

IC Charcoal, Alloway grade.....	12/6 @ 13/
IC Bessemer Steel, Coke finish.....	11/6 @ 11/9
IC Siemens.....	11/9 @ 12/
IC Coke, B. V. grade, 14 x 20.....	11/6 @ 11/9
Charcoal Terne, Dean grade.....	11/3 @ 11/6

Pig Lead has been quiet, but the market remains quite steady at £9. 15/ for Soft Spanish.

Spelter has undergone no further change, demand being fair while prices are steady at £17 for ordinary Silesian.

Steel, with the exception of Sleepers, is very dull and prices are soft. Work has been stopped at the Barrow establishment. The Iron market is without change and makers' prices stand practically as they have been for some time past. Last dealings in warrants were at 42/5 for Scotch, 34/4½ for Cleveland, and 44/4½ for Hematite.

## To Inspect Boiler Plates at the Mills.

In the report of the Supervising Inspector-General of the Steamboat Inspection Service we find that the following amendment to the laws is recommended:

"And the Supervising Inspector-General may, under the direction of the Secretary of the Treasury, detail assistant inspectors from any local inspection district where assistant inspectors are employed to inspect iron or steel boiler plates at the mills where the same are manufactured, and if the plates are found in accordance with the rules of the supervising inspectors the assistant inspector shall stamp the same with the initials of his name, followed by the letters and words 'U. S. Assistant Inspector,' and material so stamped shall be accepted by the local inspectors in the districts where such material is to be manufactured into marine boilers as being in full compliance with the requirements of this section regarding the inspection of boiler plates; it being further provided that any person who affixes any false, forged, fraudulent, spurious or counterfeit of the stamp herein authorized to be put on by an assistant inspector shall be deemed guilty of a felony, and shall be fined not less than \$1000 nor more than \$5000, and imprisoned not less than two years nor more than five years."

The object of this amendment is to provide for testing plate at the mills where manufactured instead of at the boiler works, and thus save the expense frequently incurred of returning plate that has been rejected to the mill, besides saving valuable time to the boiler manufacturers, whose workmen in many cases are kept idle while waiting for new plates to take the place of rejected ones.

For the first time in its history the Amalgamated Association will hold a second convention in Pittsburgh in one year, commencing on Thursday morning, the 16th inst., at 10 a.m. The call for this convention was issued from the headquarters of the organization in Pittsburgh a few days ago, and it was made necessary by the fact that a full expression of opinion is desired among the members on the question of granting the demand made by the Mahoning Valley mill owners for a material reduction in the finishing departments of the scale and also to consider the request that a rate of \$4.50 for boiling be allowed. In addition to this there will come up for action the question of allowing the sheet manufacturers a reduction of 10 per cent. over the wage scale agreed upon in Pittsburgh in July last. Altogether this session of the Amalgamated Association, while it will, of course, be a short one, promises to be one of the most important in the history of that organization. Should the requests of the Mahoning Valley mill owners be granted, it is very likely that the idle mills at that place and also other mills in Western Ohio, which have been idle for about four months, will resume operations within a few days. If the 10 per cent. reduction is conceded to the sheet manufacturers it will also lead to renewed activity among the sheet mills.

The United States cruiser "Columbia," in an unofficial trial over the measured course between Cape Ann and Cape Porpoise, a distance of a little less than 44 knots, averaged the remarkable speed of 22.87 knots per hour on November 14.

# HARDWARE.

## Condition of Trade.

**T**HE TENOR of recent reports from the trade shows something of an improvement in feeling, indicating that a more confident tone is prevailing, with, perhaps, an increase in the volume of business. Orders are referred to as more frequent, but for small quantities, indicating that stocks throughout the country are exceptionally limited and that purchasers are adhering to the conservative policy which has governed them for some time. Collections also are better, and little complaint is now made on this score. Another favorable indication is in the fact that the large trade are placing orders for next season, the size of which suggests the expectation of at least an average trade. Prices are without special change, most lines being held pretty firmly, but with the low prices ruling for the raw material and the low quotations current for some staple goods, the tone of the market is not strong, and it is not unlikely that prices in the future on some lines will be lower. The result is probable if, as seems not unlikely, a reduction in wages is made. Manufacturers are certainly scrutinizing their costs very closely, effecting economies wherever possible, and the question as to wages is receiving consideration. Both manufacturers and merchants are thus pursuing a conservative course, but it is pleasant to note the better feeling in mercantile and manufacturing circles and the continuance of a steady if not a large business.

### Chicago.

(By Telegraph.)

A better demand has been experienced within the past two or three days for seasonable goods, caused, of course, by the change to colder weather throughout the Northwest. In other respects the trade in Shelf Hardware is about as previously reported, but there is some encouragement in the fact that the trade seems to be going along steadily, and not decreasing in volume. There may be a slight shading on prices here and there by jobbers with large stocks, but the movement is not by any means general, and prices may be said to be well maintained considering the circumstances. Heavy Hardware is doing considerably better this month. Sales

so far are about double what they were during the corresponding period of last month. The movement is principally in Iron and Steel, but the demand for season goods is improving, and cold weather will probably make it much more active. Competition on staple goods in Heavy Hardware is getting a little keener and some shading is being done, in which, however, all the jobbing houses are not participating.

### St. Louis.

(By Telegraph.)

Hardware jobbers report a steady demand for shelf goods, but say that orders do not increase in size. Retailers continue to buy sparingly, and will doubtless do so for the balance of the year. A cold snap has at last made its appearance, and seasonable goods are moving in good quantities. Barb Wire and Wire Nails are good sellers just now and prices are firmer. Money is easier, and credits are not so closely scrutinized. Collections are excellent.

### Boston.

**BIGELOW & DOWSE.**—The past two weeks show a better feeling, and an improvement in the business outlook. A settled financial policy and easy money are working a gradual improvement, as shown by increased orders and a better demand for all kinds of Hardware. There is unmistakable evidence that confidence is returning, and that buyers are beginning to see their way clear to making contracts for their future wants. This change will be gradual, but it is none the less sure to come. It is too late to expect much this fall, but it is pleasant to believe we have seen the worst, and that future changes are to be for the better. Prices are still very low, but it is not to be expected that they will soon, if ever, return to the higher prices that have ruled in the past. The recent depression is to have its effects on the future. Manufacturers have been forced to produce their goods at the smallest possible expense, and by strict economy are able to place their goods on the market at very much lower prices than ever before. Under these circumstances it seems fair to believe that old standards are gone, never to return. A manufacturer lately made the statement that he was able, without protection, to pay his workmen \$1.50 per day and compete with foreign markets where the laborer's pay was but 50 cents per day. The American laborer, by his application and intelligence, would produce more than three times as much as the foreigner. This increased production must necessarily make new standards for future prices, and many goods that seem ridiculously low to-day are liable to be a standard for the future. Thus far there have been but few changes in prices, but dealers are all anxious to sell. There is a variety of causes working in New England to the advantage of the retail buyers. Some

reforms are being introduced, old fogysm is holding back, and in the struggle profits are being sacrificed and each is trying to demonstrate to the customer that his way is the better.

### New Orleans.

**A. BALDWIN & CO.**—The condition of business in this section is constantly improving from day to day. Money is easier, collections show a very marked improvement and travelers' orders as well as mail orders are arriving very freely, which tends to show that the conditions have almost got back to their normal state. Some of the large buyers are taking advantage of extremely low figures on some of the leading staples and are placing orders more freely, which leads us to believe that they are beginning to get their stocks into shape for a better business in the near future. The large receipts of our staple crops, sugar and cotton, are tending to enliven the situation considerably.

### Baltimore.

**CARLIN & FULTON.**—Now that the Senate has voted and the silver question passed into history and the State elections are over, with their results gratifying or disappointing, according to the several points of view; with the closing of the World's Fair and the consequent cessation of the steady drain it had made upon the spare money of every town and community in this country, business should soon adjust itself to normal conditions. Unfortunately, November in this section has never been classed among the busy months, and aside from the activity incidental to the approaching holiday season little can be expected for the balance of the year.

Orders are probably nearly as numerous as they have ever been, but the aggregate is disappointing, and with the low prices which are ruling for everything and the readiness with which orders can be duplicated and the facilities for transportation, the trade is disposed to limit purchases to almost absolute wants. This has one encouraging feature in the fact that the average dealer owes probably less than ever before, and while sales have been dull mercantile failures are comparatively few.

What the effect of the recent elections will be upon future business is problematic; for while one party claims the victory upon the grounds of a changed feeling in regard to a reform of the tariff, the dominant party argues that the depression of business could not have resulted from changes in the tariff which have never been made, and possibly were the present Administration to demonstrate the wisdom of any proposed change in the duties two years from now, the reaction would again occur, except where such votes were given as a rebuke for maladministration instead of a criticism of principles.

However much the people of this nation may differ in their political theories, they can and should discuss and act intelligently without bitter-

ness, feeling that the interests of the whole people are above that of any one party and that no one party can claim a monopoly of all the brains and all the virtue any more than the opposite party can be charged with all the ignorance and all the vice of government.

#### Louisville.

W. B. BELKNAP & Co.—Business about holds its own. It can hardly be said that there is much increase in volume, though individual days of encouragement come every now and then. If two or three of them come together, and we begin to cherish the hope of permanent increase, it is only to lose the same in a corresponding period of light buying sure to follow. Not much improvement now is looked for until the first of the year, though prices are apparently firm at recently established low levels.

Quite a number of mills which announced their probable starting up a while since must have abandoned that idea, as they still continue to sell from stock lists only.

The season for Light Sheets is pretty well over and no large orders are being placed for them, although a touch of cold, bad weather would bring about a temporary consumers' demand.

The weather of summer and autumn throughout has been exceptionally fine, clear skies and uniform temperatures making all out of door life a luxury.

The financial situation here continues to improve. Banks are running exceptionally strong. We think the last call on the national banks showed them to be carrying a reserve of between 40 and 50 per cent., but all money lenders are still timid and collateral is scanned very closely, and a good deal of it is required before making the loans. Not any enterprises of consequence are under way that we can recall; the contractions and consolidations are still the order of the day. The latest in this way is the absorption—or what amounts to the same thing—of the C. O. & S. W. R. R. from here to Memphis by the L. & N. This takes the competitor out of the way of the latter, but is not altogether relished by the shippers who rely on open and free competition for getting into certain territory. The river, however, will always prevent our being bottled up.

#### Cleveland.

THE W. BINGHAM COMPANY.—The recent elections have told our legislators in no uncertain tones that they must not meddle too much with the tariff. Whether they obey instructions or not remains to be seen, but in any event, we have no doubt of a good effect upon business, although it is too late to expect very much this fall. We can see a slight improvement in trade since our last, the number of orders being a decided increase, but the size of the orders is not much improved. Prices on staples have weakened some, in sympathy with the low price of Steel Billets and Wire Rods. The demand for season goods has kept up remarkably well. Skates, particularly, have had a ready sale, and there is no doubt but there will be a shortage when the season is fully on. Money is easy and collections are fair.

#### St. Paul.

FARWELL, OZMUN, KIRK & Co.—The even, continuous run of trade at the pace that has been set for some time past has not been disturbed dur-

ing this month. Weather has been very favorable for farm work and the farmers have used it to good advantage, and their farm work is up in fine shape, but this condition of things has been obtained at the expense of fall trade. The retail trade is light over the country generally and the orders to the jobbers are correspondingly small.

No changes in prices that deserve mention.

Collections are up to expectations. A less amount than usual will be outstanding at January 1 and stocks will also be low and the wholesale and the retail trade will both go into the new year with reduced and clean stocks.

#### Philadelphia.

SUPPLEE HARDWARE COMPANY.—We feel that trade has taken another step and ascended one more round on the ladder of prosperity; therefore what little changes have taken place in trade circles during the last two weeks have been on the side of improvement.

Country and interior merchants continue a conservative policy in buying, but as stocks are exceedingly light, it look as if the present demand was for actual and current business.

Salesmen's orders are more frequent, and cover a more extended line of goods.

Besides taking a review of the situation throughout the country, bank clearings in the volume of business show about 75 per cent. of the trade of one year ago. We think as a rule merchants give that as a fair individual estimate, although in very many instances it fell far below that in August and September.

The improved monetary conditions, coupled with improved trade, have had a beneficial effect upon many of the manufacturers located in our State.

The vaults of the banks, which have accumulated a vast amount of money, are now open to manufacturers, although they ask unquestioned security, and the partial resumption of quite a number of manufacturing industries has given employment to many who have suffered from enforced idleness during the last four months, and has had the effect of stimulating trade that has lain dormant for some months past.

There has been a liberal demand for season goods, and a desire to provide for holiday trade is noticeable.

The few changes in value of Hardware show conclusively, as a rule, that low water mark had been reached. The few exceptions of the slight decline of a few cents in Barb Wire and Wire Nails may naturally be looked upon as the result of a reduction made in wages rather than a reduction in the small profit of the manufacturer.

The recent reduction in the price of Steel Rails, which came like a thunder clap, is looked upon as rather suggestive. Some attribute it to a desire to stimulate activity of the various railroads, which have recently been so economically inclined.

Others look upon it as an era of lower wages, which they claim is yet in its infancy.

The reduction in the price of Steel Rails brings them to within 5 per cent. of the price in the English market, where the production is made upon a lower level of wages.

Whatever may be the cause or causes or the result, it is certain the demand had reached the lowest level within the last 20 years, and resumption has started with wages on a lower level

than at any time within the last 15 years.

The same causes may perhaps be coupled with the recent increased production of Pig Iron, and while we are glad to see this advance in production we, with others, regret the necessity of reduction in the level of wages.

Collections may be looked upon as nearly normal.

Congress having adjourned, the World's Fair, with all the attractive features surrounding the same, having closed, and the smoke of election having to a great extent disappeared, the feeling of the hour seems to be "now let us get down to business."

#### Portland, Ore.

CORBETT, FAILING & ROBERTSON.—Trade has dropped into a rut where only a charge of dynamite could lift it. With wheat selling at 30 cents a bushel in Eastern Oregon and Washington, it is hardly to be expected that the demand for goods would be heavy or collections good. The farmers are becoming discouraged, as not only the low price was against them the present season, but the weather also. The damage to crops was very heavy in some sections. The demand is now for an extra session of the Legislature in Washington to pass a law to stay execution. This, of course, only puts off the evil day, and debtors meanwhile pay very heavy rates of interest. The fact is pay day has at last come in this Northwest territory. Heretofore credit has been liberal, if not cheap. The question of the hour with many is how not to pay, at least for the present. Prices show no change, as it is more a question of whether the goods will sell at all rather than what to pay for them.

#### Notes on Prices.

Wire Nails.—The past week has brought but little change in the market for Wire Nails. Prices remain on about the same level as for the past few weeks and are apparently not any firmer, quotations being on a basis of \$1.20 to \$1.25 for carload lots at mill, and it is intimated that the former figure is given a little more freely than it has been, so that on good orders it about represents the market. While thus in the matter of price there is no improvement, the volume of business has somewhat increased, and a good many houses have been taking advantage of the low prices ruling and have been purchasing more freely than for some time past. As a result the mills are quite well supplied with orders. The desire to have goods shipped before the close of navigation has something to do with purchases, and the improved financial condition is also having a perceptible influence on trade in this line. Small lots from store are quoted in the New York market at \$1.60 to \$1.65.

Chicago, by Telegraph.—A remarkable change is perceptible in the tone of the Wire Nail trade. Manufacturers' agents report their books well filled with orders and specifications coming in freely. Orders for 1000-keg lots have been decidedly more numerous of late. The condition of this trade is much better now, so far as the volume of business is concerned, than at any time for the

past month. Quotations are maintained at \$1.30 to \$1.32½, Chicago, for factory lots. Jobbers quote \$1.45 to \$1.55 for small lots from stock.

**Cut Nails.**—A moderate volume of business is reported by the manufacturers. The trade are not purchasing with much freedom and the market on the whole is sluggish. Prices are represented by the quotation of 95 cents for carload lots at mill. Five cents more is sometimes asked, but, on the other hand, attractive orders can be placed at 90 cents. The New York price for small lots from store is about \$1.20.

*Chicago, by Telegraph.*—Business in Cut Steel Nails keeps up very well also. The trade with Southwestern points continues to be a good feature of current business. Prices are fairly steady at \$1.20, Chicago, for factory lots, the only variation from the base price being made in case of particularly good specifications. Small lots are selling from stock at \$1.30.

**Barb Wire.**—Barb Wire continues to move in moderate quantities and at the somewhat irregular prices which have been ruling for the past few weeks. Manufacturers are evidently desirous to secure such orders as are going and the market is decidedly in the buyers' favor. We continue to quote \$2.15 for carload lots of Four-Point Galvanized at mill as fairly representing the market, but concessions are made with more or less freedom.

*Chicago, by Telegraph.*—Trade has improved considerably in Barb Wire. Jobbers in the Northwest are beginning to inquire as to prices and terms on spring shipments, and those who have bought for delivery after January 1 are in some cases ordering shipments to begin now, as they are out of Wire. Prices are not so low here as reported in other sections of the country, carload lots being quoted \$2.40 for Galvanized Barb Wire, and small lots from stock at \$2.55.

**Carriage Bolts.**—The manufacturers of Common Carriage Bolts generally report an unusually light business. There being no association to govern prices, the tendency of quotations has been downward, until they have reached a point which is referred to as being nearly as low as the goods have ever touched.

**Machine Bolts.**—The condition of the market in Machine Bolts is similar to that of Carriage Bolts, as above referred to, except that prices are perhaps a little better sustained. They are, however, low and somewhat uneven and manufacturers are competing actively for business.

**Perkins' Snow Shoes.**—Rhode Island Perkins Horse Shoe Company, Providence, R. I., for whom J. C. McCarty & Co., 97 Chambers street, New York, are agents, announce that the price of Perkins' Snow Shoes is 4

cents per pound, instead of 4½ cents, this change dating from November 1.

**Axles.**—The market for Axles has been fairly regular for some time, with, however, something of a downward tendency, which has resulted in somewhat lower prices. It is now fairly represented by the following quotations, which are subject to a discount of 3 per cent. for cash:

	Cents.
No. 1.....	3¾ to 4
No. 2.....	4½ to 5
	Per cent.
Nos. 7 to 14.....	70
Nos. 15 to 18.....	47½
Nos. 19 to 22.....	70
	Cents.
Concord Axles, No. 5, loose collar.....	4½ to 5
Concord Axles, No. 6, solid collar.....	5½ to 6

**Machine Finished Anvils.**—Markt & Co., 87 to 95 North Moore street, New York, have received a shipment of Machine Finished Anvils made by Soeding & Halbach, Hagen, Westphalia, and are about introducing these goods into the American market. A circular is issued giving a few selected cuts of the different patterns, especial attention being called to the American and English patterns. Special emphasis is laid on the fact that instead of grinding the faces and punching the holes, as is usually done, the faces and edges are planed, the round holes are drilled and the square holes mortised, and they are thus made perfectly true and rectangular. The following are the prices for the Anvils, which are subject to a discount of 15 per cent. on five or more, while on import orders of over 50 Anvils, with an average weight of 150 pounds, a discount of 25 per cent. is allowed:

No. 10 American Pattern or No. 9 English Pattern.	Pounds.	Per pound.
44-66.....		\$0.14
66-88.....		.12½
88-110.....		.12
110-165.....		.11¾
165-220.....		.11½
220-440.....		.11¼
440-880.....		.12
880-1100.....		.12½
1100-1320.....		.14

With stock and bending edge like No. 58, as shown in their circular, the prices are as follows, subject to the discount named above:

Pounds.	Per pound.
220-440.....	\$0.12½
440-880.....	.13

Soeding & Halbach are manufacturing over 200 different patterns to meet the requirements of the different markets of the world. A stock of the American pattern is carried as above by Markt & Co. in this city.

**Scythe Snaths.**—A change has been made in the list prices on Swing Socket and Slide Socket Snaths, which are advanced 50 cents per dozen for the coming season. The corrected list is given as follows by Derby & Ball, Bellows Falls, Vt., for whom John H. Graham & Co., 113 Chambers street, New York, are general selling agents, the list being subject to a discount of 50 per cent.,

and an additional 2 per cent. for cash in ten days:

	Scythe Snaths.	Per doz.
000. Patent Swing Socket, Loop Snaths, Brass Trimmed, Screw Nib, heavy.....		\$10.50
000. Patent Swing Socket, Loop Snaths, Brass Trimmed, Screw Nib, medium.....		10.50
00. Patent Swing Socket, Loop Snaths, Iron Trimmed, Screw Nib, medium.....		10.00
00. Patent Swing Socket, Loop Snaths, Iron Trimmed, Screw Nib, heavy.....		10.00
No. 50. Loop Snath, Brass Trimmed, Screw Nib, Solid Plate Socket.....		10.00
No. 150. Loop Snath, Iron Trimmed, Screw Nib, Solid Plate Socket.....		9.50
No. 0. Ring Snath, Z Plate, Brass Trimmed, Screw Nib, heavy.....		9.00
No. 02. Ring Snath, Z Plate, Iron Trimmed, Screw Nib, heavy.....		8.25
No. 1. Ring Snath, Patent Socket, Screw Nib, Brass Trim'd, heavy.....		8.50
No. 1. Ring Snath, Patent Socket, Screw Nib, Brass Trim'd, medium.....		8.50
No. 2. Ring Snath, Patent Socket, Screw Nib, Iron Trim'd, medium.....		7.50
No. 2. Ring Snath, Patent Socket, Screw Nib, Iron Trim'd, heavy.....		7.50
No. 3. Ring Snath, One Hole Socket, Screw Nib, Iron Trimmed.....		6.50
Double Ring, Bush Snaths, Patent Socket, Screw Nib, Iron Trimmed, Patent Loop, Bush Snaths, Screw Nib, Iron Trimmed.....		10.00
No. 20. Loop Snaths, Brass Trim'd, Screw Nib with Frost's Patent Socket.....		10.00
No. 120. Loop Snaths, Iron Trim'd, Screw Nib with Frost's Patent Socket.....		9.50
No. 10. Loop Snaths, Brass Trim'd, Screw Nib, Slide Socket.....		10.50
No. 102. Loop Snaths, Iron Trim'd, Screw Nib, Slide Socket.....		10.00
No. 1. Ring Snaths, Solid Plate, Heavy Screw Nib.....		9.00
Dutch, Mulay and Jersey Bend Snaths, list price, \$1 per dozen extra.		

	Cherry Snaths.	Per doz.
Cherry Snaths, 000.....		15.00
00.....		14.00

**Machine Screws, &c.**—The following discount sheet has recently been issued by Reynolds & Co., New Haven, Conn., applying to their catalogue, August 1, 1893. Terms, cash in 30 days, or 2 per cent. for cash:

	Discount.
	Per cent.
Steel Set Screws.....	70
Iron Set Screws.....	70
Soft Set Screws (iron or steel).....	70&5
Square Head Cap Screws.....	65
Hexagon Head Cap Screws.....	60
Round Head Cap Screws.....	50
Flat Head Machine Screws, milled from solid bar.....	50
Button Head Machine Screws, milled from solid bar.....	50
Round Head Iron Machine Screws.....	60
Flat Head Iron Machine Screws.....	65
Filister Head Iron Machine Screws.....	60
Round Head Brass Machine Screws.....	60
Flat Head Brass Machine Screws.....	65
Stove Bolts, in boxes.....	60
Stud Bolts, milled over all.....	55
Milled Tap Bolts.....	60
Milled Coupling Bolts, heads and nuts ground.....	50
Milled Coupling Bolts, heads and nuts not ground.....	60
Forged Tap Bolts.....	75
Taps.....	25
Machine Bolts, with Black Nuts.....	80-15
" " " C. & T. ".....	80-10
Coach Screws, Plain Points.....	80-15
" " " Gimlet ".....	80-10
Finished Hexagon Nuts, 1½ inches and smaller.....	60&5
Finished Hexagon Nuts, larger than 1½ inches.....	50
Semi-Finished Hexagon Nuts, 1½ inches and smaller.....	60&5
Semi-Finished Hexagon Nuts, larger than 1½ inches.....	50

**Standard Watering Pot.**—The Standard Watering Pot, manufactured by Engelhart & Co., Glenville, Ohio, which was described in a recent issue, is sold from the following list, which is subject to a discount of 33½ per cent.:

Quarts.....	8	10	12	14	16
Each.....	\$1.25	1.35	1.50	1.75	2.00

**Bread, Cake and Paring Knives**—The Clauss Shear Company, Fremont, Ohio, and 100 Chambers street, New York, issue a revised net price-list of the Clauss Bread, Cake and Paring Knives and Perfect Carver, as follows:

	Per dozen.
Set A, consisting of Bread, Cake and Paring Knives .....	\$6.00
Set B, consisting of Bread and Paring Knives and Perfect Carver.....	6.00
Bread Knife.....	3.00
Cake Knife.....	2.00
Paring Knife.....	.00
Perfect Carver.....	3.00

**Glass.**—Window Glass houses continue to go into operation, one by one, and probably a large proportion of the entire number will be making Glass by the end of this month. It is not anticipated that the amount of Glass manufactured will be allowed to be much in excess of the demand. The Glass business may be said to compare favorably with other lines, although prices are unsettled. There is no basis for official quotations, as each maker or jobber is getting what he can. A Cleveland jobbing house quotes Single and Double Glass, by the box, at 80 and 20 per cent. discount, f.o.b. Cleveland, or in 25-box lots, 80 and 20 per cent. discount, freight allowed. Some of the Plate Glass works are starting up, the open weather having been favorable for building, and the demand, though not large, shows no signs of falling off, nor have prices advanced.

### Communication.

NATIONAL RETAIL HARDWARE DEALERS' ASSOCIATION.

SECRETARY'S OFFICE,  
9 DOCK SQUARE, BOSTON, MASS.,  
November 13, 1893.

To the Editor: The columns of *The Iron Age* are always interesting and instructive, but occasionally an article appears that is of exceptional interest. Such an article is the one entitled "Selling at a Loss," printed in your issue of November 2.

The writer of this article speaks of the practice of some dealers selling goods at little or no profit, simply for the purpose of knocking out their hated rival in business, and then goes on to condemn the practice in unmeasured terms.

In the opinion of the writer, such policy—or perhaps it would be more appropriately named lack of policy—cannot be too strongly condemned, but the fact cannot be denied that there is much of the business of the country at present being conducted in this way, and leads me to ask, in addition to the question of the writer above referred to, "Why goods should be sold at no profit," the more pertinent one of why he should have any hated rival?

And having asked this question, does it not at once occur to any one giving the subject the least thought that it is this kind of rivalry that causes the loss of profit in the trade? Admitting this to be the case, why not try and find a remedy? Why not stop at once and forever this unnatural, unchristian and uncalled for rivalry? But how are we to do this?

I answer, by organization. Form an association of the trade in every State. Ask the members to meet together once a month for social and business purposes, and you will be surprised to find how quickly this feeling of enmity will disappear, and the only rivalry will be to see who can do most for the welfare of all. Possibly some may laugh and say that this is impossible. To such I would say that this is written from experience in the working of our own association here in Boston, and every member will testify to its correctness.

Therefore I say again, organize. Organize in the city, the State and the nation. The city and State organizations should be for the purpose mainly of becoming friends instead of enemies, of doing away with this feeling of rivalry, and of helping one another. The national organization should be broader in its scope and seek by its methods to promote the interests of all throughout this entire land. And such it is intended to be, and as such, we invite the trade to join it.

I am now sending through the mails to every retail dealer in the country (of which there are something over 18,000) copies of the constitution and by-laws of the National Association, a blank application for membership and a letter, of which the following is a copy:

DEAR SIR:

Enclosed please find constitution, by-laws and blank application of the National Retail Hardware Dealers' Association, organized at Chicago September 20. We invite an earnest perusal of these, and would suggest that it is for the interest of every dealer in the country to become a member, and trust that you will promptly fill out the application and return the same, together with the membership fee, to Wm. T. Humes, 50 State street, Chicago, Ill., or to the Secretary, H. G. Janvrin, 9 Dock Square, Boston, Mass. It is not the disposition of this association to use any means to accomplish its objects that will not commend themselves to all fair minded men, and we are led to believe that many of the leading manufacturers and jobbers will co-operate with us.

I trust that whoever receives these will not lay them aside for future consideration, but will act at once and favorably. This is a matter that concerns the welfare of all, and it hardly seems necessary to ask for favorable consideration. It must be pertinent to every thinking man that an organization of this character, comprised, as we believe it will ultimately be, of a majority of the entire trade in the United States, will be a great power for good to all.

In my article of October 12 I solicited correspondence from dealers from

any State, and am pleased to say that I have received quite a number of letters expressive of approval of the association and offering assistance.

I now desire to repeat this request, and in addition to ask the assistance of the secretary of each State or city organization. Will these officers please write me? I understand there are quite a number, but am unable to learn their addresses.

H. G. JANVRIN, Secretary.

### Massachusetts Hardware Dealers' Association.

A REGULAR MONTHLY MEETING and dinner of the Massachusetts Hardware Dealers' Association was held at the United States Hotel, Boston, Wednesday evening, November 8. The principal business transacted was the adoption of a resolution to join the Massachusetts State Board of Trade, and the admission of new members. The business meeting was followed by a dinner, at which L. H. Pease of the Stanley Works, New Britain, Conn., a guest of the association, was the principal speaker, in the absence of W. H. Sayward, who had promised to be present, but was detained at Chicago. The next meeting of the association will be held at the same place December 13.

### Export Notes.

THE TRADE are familiar with the fact that there is an increasing tendency on the part of English and Continental manufacturers to imitate American goods, notably in the line of specialties. They are thus able to avail themselves of the results of the ingenuity and enterprise of manufacturers in this country and produce goods at lower figures than they can profitably be imported for from here. This practice applies to a wide range of goods, and we are advised that American repeating Rifles recently offered in Belgium on examination proved to have been manufactured in Liege. In view of this tendency it is advisable that our manufacturers should have their names and addresses marked indelibly in the metal wherever possible instead of relying, as they often do, upon adhesive labels. In this way the foreign counterfeits could be readily detected, which would be to the advantage of our manufacturers, as there is a general preference abroad for goods made in this country.

The Governor of British Honduras has, says the *Ironmonger's Chronicle* of London, sent to the London Chamber of Commerce a collection of samples of wood cutting tools, in the hope that the attention of manufacturers might be directed to the competition in such goods which has now sprung up between the United States and Great Britain for the supply of these implements. He suggests that it might be possible for English manufacturers to turn out as serviceable an article as the United States and at the same cost.

## Julien P. Cordier.

WE PRESENT HEREWITH an excellent portrait of the late Julien P. Cordier, manager of the Western branch of the Lalance & Grosjean Mfg. Company, 81 Michigan avenue, Chicago, who died somewhat suddenly at his residence, 5943 Wabash avenue, in that city, on the 2d inst. of hemorrhage of the lungs. Mr. Cordier was 51 years of age, and was born in the city of New York, of French parentage. He had been connected with the company since boyhood, having entered their employment at their organization, 35 years ago. The past 11 years of his service were spent in Chicago, where he was manager of that branch since its opening. He had previously traveled over every section of the United States and through the various South American countries in the interests of the concern. He was, perhaps, most intimately known, however, in the Southern States, where he spent much time and possessed a troop of friends. At the time of his death Mr. Cordier was a stockholder and one of the directors of the Lalance & Grosjean Company, of which his brother Augustus is the vice-president. Another brother, Joseph, is connected with the company's factory at Woodhaven, L. I., while a third brother, Charles, is connected with the Bridgeport Brass Company.

Julien Cordier was widely known and highly esteemed by the hardware trade of this country, and his acquaintance was also extensive in other parts of the American continent. He was a man of polished address and many accomplishments, and his genial nature and strict integrity gained for him a host of devoted friends, to whom the tidings of his too early death will bring a feeling of sorrow and loss. He leaves a widow and daughter. The funeral services were held in Chicago, and temporary interment was made there.

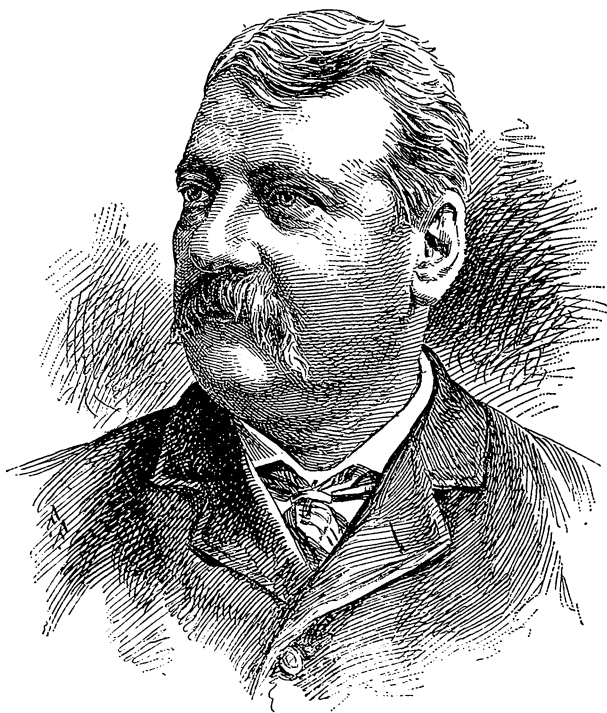
## Branford Lock Works.

UNDER DATE of November 7, on a petition unanimously adopted at a meeting of the stockholders of the Branford Lock Works, Branford, Conn., asking for the appointment of Henry R. Towne, president of the Yale & Towne Mfg. Company, Stamford, Conn., as receiver, the Superior Court of Connecticut made the desired appointment. The necessity for this action is referred to as arising from the fact that the Branford Lock Works lack the capital needed to continue business successfully and to carry out their agreements with the Yale & Towne Mfg. Company.

It will be remembered that on July 1, 1892, a contract took effect between the Yale & Towne Mfg. Company and the Branford Lock Works, whereby the former became the exclusive sales agents of the latter. The contract contemplated that the business at

facturing and should have the benefit of the extensive selling organization of the Yale & Towne Mfg. Company. It was then supposed that the Branford Lock Works, with the financial assistance which it was stipulated should be given to them by the Yale & Towne Mfg. Company, would be able to successfully conduct their business and to produce the character and quantity of goods which would be called for.

As is now known, the Branford Lock Works at that date were endeavoring to do business on a capital so insufficient that they would soon have been compelled to close. The financial assistance given them by the Yale & Towne Mfg. Company, which finally was much more than the contract called for, enabled the works to continue in business until now, instead of closing long ago, as they would otherwise have been forced to do. The facts have been placed be-



JULIEN P. CORDIER.

fore the stockholders, who were urged to provide the new capital needed to continue the business, but who were unable to do so. The latter have in a most cordial and grateful manner expressed their appreciation of the efforts of the Yale & Towne Mfg. Company to assist and continue the business, and when a receivership became inevitable they requested, by a unanimous vote, the appointment of Henry R. Towne, president of the Yale & Towne Mfg. Company, who has for the past year, by request of the stockholders, also acted as president of the Branford Lock Works, as the receiver. The present management has succeeded by new and better methods in placing the business in a much better condition than has obtained for many years, but, of course, cannot continue the business without adequate capital. As yet no plan has been proposed which makes it an object to the Yale & Towne Mfg. Company to make further advances of capital, and as the stockholders are unable to do so themselves it is not yet certain that the business can be permanently continued. These questions are now under consideration, and in the meantime the business is being

conducted as usual by the receiver, and orders promptly attended to. As soon as a final decision is reached due notice of it will be given to the trade.

## Export Notes.

HEMENWAY & BROWNE, 47 Cedar street, New York, have the steamer "Moldava" for Talcahuano, Valparaiso and Antofagasta, west coast Pacific ports, to sail about December 15. They call the attention of manufacturers and shippers to this opportunity for getting exhibits of mining and metallurgical machinery to Santiago, Chili (via Valparaiso) for the World's Fair to be held there next April. It will be remembered the Chilean Government has appropriated money for such an exhibit for the purpose of advancing and developing the resources of that country, and undertakes to pay actual freight charges both ways by sea and land, as well as the expenses of the workmen sent out to install the exhibits.

M. J. Ulery, formerly in charge of the New York office of the Clauss Shear Company, at 100 Chambers street, has for some months been in London, England, at the Company's headquarters, 55 Holborn Viaduct, supervising the seven or eight salesmen who canvass Europe in the interest of the line of goods made by this company, particularly the series of special Carving, Bread, Cake and Paring Knives with scalloped edges and metal handles.

## Trade Items.

WE ARE ADVISED by Joseph Lucas & Son, Birmingham, England, for whom the New Departure Bell Company and John H. Graham & Co., 113 Chambers street, New York, are sole agents in this country, that they are making additions to their line of Bicycle Lamps, including some patterns new in design, and are also making improvements in those with which the trade are familiar. A line of their samples may be seen and a stock is carried at the store of their agents, who with this recent addition to their line of agencies are headquarters on a number of Bicycle specialties. The New Departure Bell Company, for whom they are agents, are also making several new patterns and their assortment will thus be exceptionally large and complete. A variety of Bicycle Locks made by Slaymaker, Barry & Co. are also offered by them, as is also the Acme Luggage Carrier, made by the Hall Mfg. Company.

SHEPARD HARDWARE COMPANY Buffalo, N. Y., issue three circulars, which they are sending out, offering for sale metal patterns of any goods formerly made by them, second hand machinery, also a considerable number of Floor Flasks for foundry use. Included in second hand machinery, fixtures, &c., are Boilers, Steam Pump, Blowers, Riveting Machine, Fire Extinguishers, Ladle Shanks, Japan Ovens, Office Furniture, Fixtures, &c. Metal Patterns include those of Blind and Shut-

ter Hinges, Gate Hinges and Latches, Dampers, Presses, Toy Banks, Stove Lid Lifters, Sausage Stuffer, Coffee Pot Stands, Boiler Handles, Iron Toys, &c. Any inquiries regarding these articles will be cheerfully answered by the company.

**BRADLEY & HUBBARD MFG. COMPANY**, 26-28 Park Place, New York, have rehabilitated their extensive display rooms, renewed their samples and otherwise completely effaced the ruin accomplished by the recent fire. On entering from the street, at the foot of the stairs leading to the main floor, they have a large show window which is kept brilliantly lighted by electricity so as to effectively display the high class goods, consisting of Lamps, Shades, Statuary and other articles contained in it. On the floor above, where their line is really seen, will be found some very recent attractions in the way of Venetian Iron Work in dead black. Many of these goods are not of the customary wrought iron, but have been successfully made of cast iron to resemble the genuine and more expensive goods. These wares are offered at approximately one half the usual cost. Among the kinds of goods treated in this manner may be mentioned Andirons, Fenders, Fire Sets (including Shovel, Tongs and Poker). They have likewise brought out lines of goods of cast iron finished in brass plate, which for delicacy of treatment and excellence of design will readily pass for real cast brass. This class of goods are offered largely to people of refinement with modest incomes at a much reduced price.

THE MANAGERSHIP of the Chicago branch of the Lalance & Grosjean Mfg. Company of New York, rendered vacant by the lamented death of Julien P. Cordier, has been filled by the appointment to that position of Charles W. Hyde. Mr. Hyde, who is widely known and esteemed in Hardware and house furnishing trades, has been connected with Lalance & Grosjean Company for several years, having represented their interests for a considerable period in the Southern States and recently in the territory lying between New York and Chicago.

**E. C. STEARNS & Co.**, Syracuse, N. Y., who have accepted the challenge issued by the St. Louis Refrigerator & Wooden Gutter Company, St. Louis, relative to the strength of the Luminum frame used in their Bicycle as compared with any steel tubing frame, have selected for their judges William A. Redding of Redding & Kiddle, attorneys, 85 Park Row, New York, and Charles E. Lipe, M.E., 208 South Geddes street, Syracuse. The St. Louis Refrigerator & Wooden Gutter Company have selected as their judges Edward Flad, C.E., member of the American Society of Civil Engineers and the American Society of Mechanical Engineers, St. Louis, Mo., and Robert Moore, C.E., member of the Institution of Civil Engineers and late chief engineer of the St. Louis Merchants' Bridge Terminal Railway. The amount of forfeiture stipulated in the challenge has been forwarded by the contestants to the Wheelman Company of Boston to be held by them as trustees pending the result of the tests. The four judges, as above, are now conferring together with a view to appointing the fifth judge. As soon as this is done and the details of the tests decided upon arrangements for the completion of the same will be commenced.

**HENRY A. ROGERS** has been appointed a school commissioner by Mayor Gilroy of New York City. Mr. Rogers is a dealer in Railroad Supplies at 19 John street and has taken great interest in educational matters, for

ten years having been a school trustee in the Twenty-second Ward. He was United States Commissioner of Jurors for nine years and is a director in the Seventh National Bank. Mr. Rogers' appointment is regarded as a most excellent one.

SOME TIME SINCE we announced the failure of the Denver Hardware Company of Denver, Col. This concern has been confounded by some persons in the trade with the Denver Hardware Mfg. Company, who have, we are advised, no connection whatever with the Denver Hardware Company. The former concern are manufacturing a full line of Hardware and advise us that they are taking care of all orders sent to them.

**S. A. HAINES** of Indianapolis has been making a trip East and spending a few days in this city, where he receives a very hearty welcome from his many friends.

**WILLIAM R. GRAEF** of Graef & Schmidt, 29 Warren street, New York, is now in Chicago supervising the dismantling and shipment to Germany of the extensive Cutlery exhibit made by the old establishment of J. A. Henckels, Solingen, at the World's Columbian Exposition. It was said to have been one of the largest and most attractive exhibits of its kind.

**JUDGE SEVERENS** of the United States Circuit Court, on the 8th inst. rendered a decision in the case of the Bissell Carpet Sweeper Company vs. the Goshen Sweeper Company, both located at Grand Rapids, Mich. Application had been made for an injunction restraining the defendants from using the Plumb patent in the manufacture of the Goshen Sweeper. This injunction was denied by Judge Severens, who is of the opinion that the defendants' machines do not infringe Plumb's patents.

IN THEIR ADVERTISEMENT in this issue the Coburn Trolley Track Mfg. Company of Holyoke, Mass., direct the attention of the trade to their parlor, barn, mill and fire Door Hangers, also to four styles of Rolling Ladders for store use. These are made to reach shelving of any height.

WE ARE ADVISED that Charles J. Healy, 106 Chambers street, New York, has dispensed with the services of S. R. Droscher, whose connection with him terminated on the 11th inst.

THE TRADE will observe the advertisement of Smith, Lyon & Field, 139 Duane street, New York, in which they announce that they have purchased the Bailey Auger Bit Company's entire stock of Auger Bits, Car Bits and Augers, and offer them at prices which should be an inducement to the trade. They refer also to the special qualities of this Bit and its advantages.

THE AMERICAN CURLING IRON WORKS, 72 to 74 Market street, Chicago, are manufacturing a varied line of Hardware specialties. Among these are Curling Irons of several patterns, such as the Improved American Waving Iron, the Columbian Folding Curling Iron, and the Nellie Bly Hair Curler. In addition, their line comprises the Western double-acting Door Spring, Reiher's Standard Transom Lifters, nickel-plated raised and flat House Numbers, &c. They also manufacture Fisher's patent lever Latch and Handles for all sizes of refrigerators, cooling rooms, closets or other doors which it is desirable to keep tightly closed. Three sizes are made, either right or left handed. They are finished in black japanned malleable iron, brass, nickel plate on brass, silver plate on brass, or solid bronze.

## Price-Lists, Circulars, &c.

**W. M. FRANKFURTH HARDWARE COMPANY**, Milwaukee, Wis.: Price current of fall and winter goods. Illustrations and list prices are given of the Winslow and Czar Skates, Table Cutlery, flat Silver Ware, Butcher Knives, Carvers, Scissors, Pocket Cutlery, Razors, &c.

**JOSEPH F. MCCOY COMPANY**, 26 Warren street, New York: Illustrated circular and price-list of Coates' and French Horse and Hair Clippers, for which they are headquarters. Numbers are given of the most desirable patterns of Clippers for use on horses; especially patterns with anti-friction rollers, and for trimming horses' legs. An assortment to order is suggested as desirable for those who have never handled these Clippers.

THE CLAUSSE SHEAR COMPANY, Freeport, Ohio: Shears, Scissors, Knives, &c. A pamphlet sent out by the company illustrates the Clauss Carver, Bread, Cake and Paring Knives, also Shears, Scissors, Knife Sharpener, Flexible Pot and Kettle Cleaner. The company were awarded three medals and three diplomas at the World's Fair for Shears, Scissors and Knives.

**PERKINS & Co.**, Grand Rapids, Mich.: Shingle Mill Machinery. The Columbia edition of their illustrated descriptive catalogue calls attention to hand feed Shingle Machines, one, two and ten block power feed Shingle Machines, knee and power feed Bolters, pivoted and power feed Cut Off Saw Machines, Drag Saw Machines, Log Jacks, Wheel Jointers, Packers, Saw Grinders, and Saw Gummers, Rat Catchers, &c.

**VON LINGERKE & DETMOLD**, 8 Murray street, New York: Firearms, Ammunition, Sporting and Athletic Goods. A special illustrated catalogue just issued by them directs attention to the Francotte Shot Guns made in Liege, Belgium, for which they are agents in America. In the higher grades of this hammerless arm have been concentrated a number of improvements, which are referred to by them as follows: The barrels are fitted with a doll's head extension rib, with a cross bolt through the rib, together with Purdey's side extension frame to keep the barrels rigid and prevent lateral motion. There is also a safety block which is designed to prevent the jaw from jarring off. The last page of the pamphlet shows changes which have been made in the list of Hand Loaded Shot Gun Cartridges, which has been made possible, it is stated, through the reduced cost of powders.

**BRISTOL BRASS & CLOCK COMPANY**, Forestville, Conn., and 32 Warren street, New York: Kerosene Burners, Lamps, Lamp Trimmings, &c. An illustrated catalogue shows Lamp Burners, Collars, Feed Caps and Collars, Reducing Collars, Expanding Screws, Globe Holders, Shade Holders, Brass Trays, Night Lamps, Brass Lanterns, Electric Fount and Lamp, Bristol Central Draft Lamp, Aetna Lamp, Hand Lamps, Hanging Lamps in a variety of styles, Banquet and Table Lamps, &c.

THE IONA MFG. COMPANY, 336 Congress street, Boston, Mass.: Electrical specialties. Their illustrated catalogue and price-list shows Lamp Sockets, Switches of various kinds, Cut Outs, Insulating Joints, the Iona gas lighting Burner, Gongs, Watchmen's Time Registers, &c. All goods are accompanied by descriptions and list prices.

**B. F. AVERY & SONS**, Louisville, Ky.: Plows and Cultivating Implements. Their sixty-eighth annual catalogue illustrates and describes these

goods. As new and seasonable specialties attention is directed to Avery's Simple Sulky Plow, Simple Sulky Stalk Cutter; two, three, four and five furrow Gang Plows, Moon Rolling Colter and Plow Gauge, Granite chilled Plows, new Garden Plow, &c. The manufacturers remark in this connection that their factory has run uninterruptedly throughout the present year, stopping only a few days for necessary repairs and annual stock-taking.

E. C. NEWTON, Batavia, Ill.: Newton's improved Cow Tie. The Tie, as illustrated in the catalogue, is made of wood bent in shape of a bail or three sides of a square, the open ends of which are pivoted by bolts to the front part of the manger. A swivel is fastened to the Tie, in front, at the center, so that one part turns with the rope on the animal's neck, and the other part revolves around the wooden Tie, to make it impossible for the animal to get it twisted. It is claimed that the Tie is more humane than stanchions and that it keeps cows cleaner than other methods of fastening, as it pushes them back when standing and draws them forward when lying down.

### It Is Reported—

That burglars recently entered the Hardware store of Teeple & Caldwell, Pinckney, Mich., and stole about \$50 worth of Cutlery.

That William Roseberry has opened a new Hardware store at Wharton, Texas.

That the Hardware firm of Atchison & Knowlton, Newton, Kan., has been dissolved. T. B. Atchison will continue the business under his own name. The firm had been in business for 18 years.

That Alexander Warner has sold his Hardware business at Palouse, Wash., to Wheeler Bros.

That J. E. Fawcett is preparing to build a large Hardware store at Platteville, Ill.

That A. O. Wible, formerly with A. J. Turney, has entered the firm of Allshouse, Beck & Co., who have just opened a new Hardware store in Greensburg, Pa.

That C. Wirths, Hardware merchant, 844 West Indiana street, Chicago, shot and seriously wounded a burglar who on the morning of the 6th inst. tried to effect an entrance into his store.

That John P. Barnes, a Hardware dealer, who has been in business in Anderson, Ind., for more than a quarter of a century, is soon to retire. An Indianapolis firm have made a deal with Mr. Barnes and are now practically in possession of the business, as the stock has been invoiced. Mr. Barnes will be retained for the present as business manager, but will probably retire altogether in a few weeks.

That Grossman & Geiseman's Hardware stock, at Shannon, Ill., was destroyed by fire on the 6th inst. Loss, \$2000; insurance, \$500.

That the Hardware store of Joseph Mohr, Danvers, Ill., was destroyed by fire on the 6th inst.

That James King's Hardware store, at Arena, Wis., was burned out on the 30th ult.

That E. W. Johnson has sold his interest in the Rockford Hardware Company, Rockford, Mich., to H. C. and W. F. Hessler and retired from the business.

That the Hardware store of M. J. Wilson, Rushville, N. Y., was broken into by burglars on the 29th ult., and robbed of 30 dozen Pocket Knives and a quantity of Table Cutlery.

That Turner & Archibald, Hardware merchants, Ridge Farm, Ill., have sold out to W. F. Jenkins & Bro.

That James A. Moren of the Hardware and Stove firm of Draper & Moren, Converse, Ind., has disposed of his interest to A. J. Webb. The business will hereafter be carried on under the style of Draper & Webb.

That the Hardware firm of Wentworth & Brown, Benton Harbor, Mich., are now Wentworth & Baker, Elwood Brown having sold his interest to J. J. Baker.

That Monroe Hoffman has opened a Stove and Tin store at Alliance, Ohio.

That the store of the Shafers Hardware Company, Butler, Ohio, was recently damaged by fire.

That H. D. Newcomb, dealer in Hardware, Stoves and Guns, Ironton, Ohio, has sold out to Goldcamp Bros. & Co.

That C. N. Hopkins is out of the Hardware business at Union City, Ind. Hatch & Hopkins will continue.

That Geo. W. Harris, Petaluma, Cal., has disposed of his Stove business to Hurd & Dies.

That E. H. Robinson has sold out his Hardware business at Santa Cruz, Cal.

That H. Edwards' Hardware store, at King City, Mo., was recently visited by fire.

That David S. Donovan has entered the Stove and Tin business at Plainfield, N. J.

That the Hardware firm of Worsten-croft & Son, Payson, Utah, have been dissolved.

That J. F. Long's Hardware store, at Alvord, Texas, was robbed on the 3d inst.

That in a fire on the 11th inst., the store of Thompson & Hoague, Hardware merchants, Concord, N. H., was destroyed.

That the Hardware store of H. Hatch, Fort Pierre, S. D., was burglarized on the 3d inst. About \$70 worth of Revolvers, Rifles, Cartridges and Pocket Cutlery was taken.

### Paints and Colors.

*It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.*

Business in all branches of the market is low. This is no uncommon experience at the middle of November, but that the dullness should be so pronounced in the face of the quiet business experienced last month is somewhat surprising. The explanation is that the markets are not in shape to encourage free buying; that the surroundings justify the idea that there is everything to gain and nothing to lose by going slow. The productive capacity in all departments is heavy. The outlook for average consumption during the balance of the year is poor. Stocks of everything in the shape of base material are quite large. Competition between manufacturers is keen.

**White Lead.**—The market is unsettled and weak. The "combine" list prices and terms as per last circular are the exception rather than the rule where business of a wholesale character is involved. Outside competition is keen in various quarters, and is being met. Jobbers undersell the list to the small trade. Dry Lead in kegs has been sold in 5-ton lots at 5¢ @ 5¼¢ by

the outside manufacturers, and Lead in Oil at ¼¢ @ ¾¢ above those figures. It is stated that orders for deliveries during the first quarter of next year would be booked at the same rate.

**Red Lead.**—Few orders for round lots have been placed, and the demand for jobbing quantities has hardly reached the average volume. Prices are a little weak, particularly on foreign stock for future delivery, but no positive changes have been quoted.

**Litharge.**—Orders have been almost uniformly rather small and few in number. Interest in future deliveries continues tame. Previous prices are asked for both foreign and domestic, but the market is rather weak.

**Zincs.**—Deliveries of domestic Oxide on old contracts cover about the entire movement at present. Hardly any disposition is shown to contract for supplies for next year. Former prices are generally quoted, but the tone of the market is soft. Foreign brands are very slow of sale.

**Colors, &c.**—Bulk colors have been taken sparingly by the large consumers, nearly all of whom claim to have enough stock to last 60 days ahead. Oil Colors have also had slow sale. Varieties taken by the retail trade fared very little better, if at all, while mixed Paints continued exceedingly dull. Prices are more or less variable, but no radical changes have been quoted during the past week.

### Oils and Turpentine.

The movement of Oils from first hands has been commonplace and jobbers note a tame experience also. Speculation seems to have disappeared for the time being, since there is no incentive to venture, and regular trade purchases are gauged almost wholly by imperative wants. Prices are somewhat uneven, as is generally the case when trade runs slow, but no radical changes have taken place.

**Linseed Oil.**—City crushers maintain the prices that have ruled for several weeks, but state that sales are light at present and that the demand is remarkably slow. There has been rather freer offering of out of town brands, in carload lots, and prices have ruled irregular; sales were made at 37¢ @ 38¢, according to brand.

**Cotton Seed Oil.**—Conditions have been more or less adverse, and the market has suffered. Supplies are larger here, the offering for future delivery is more liberal, while lower prices for Lard and inferior greases have prevailed. Late business was at prices on the basis of 35¢ @ 36¢ for prime crude and 39¢ @ 40¢ for prime Summer Yellow.

**Lard Oil.**—Prime brands, local make, were sold as high as 80¢, but the price subsequently weakened to 78¢, and the market is now unsettled, with sellers at the last named rate. There is hardly any movement at present except of rather small lots, and the demand is tame.

**Fish Oils.**—No change has taken place in the market for crude Sperm or crude Whale. Sellers seek former prices, but find no outlet at present. Crude Menhaden has been sold to a fair extent at former rates. Prices for the pressed and bleached Oils are unchanged, and the market is quiet.

**Miscellaneous.**—Common Olive Oil on the spot is firmer at 60¢ @ 62¢, but for future deliveries there are sellers at 55¢ @ 57¢. Business is moderate. Ceylon Coconut rather weak, with sales at 5¼¢ @ 5½¢. Cochin sold at 6½¢ @ 6¾¢, in moderate quantities. Red Oils are quiet and unchanged.

**Spirits Turpentine.**—Prices have remained almost stationary at 30¢ for regular and 30½¢ for machine barrels. There is no new feature, supply being fair and the demand very ordinary.

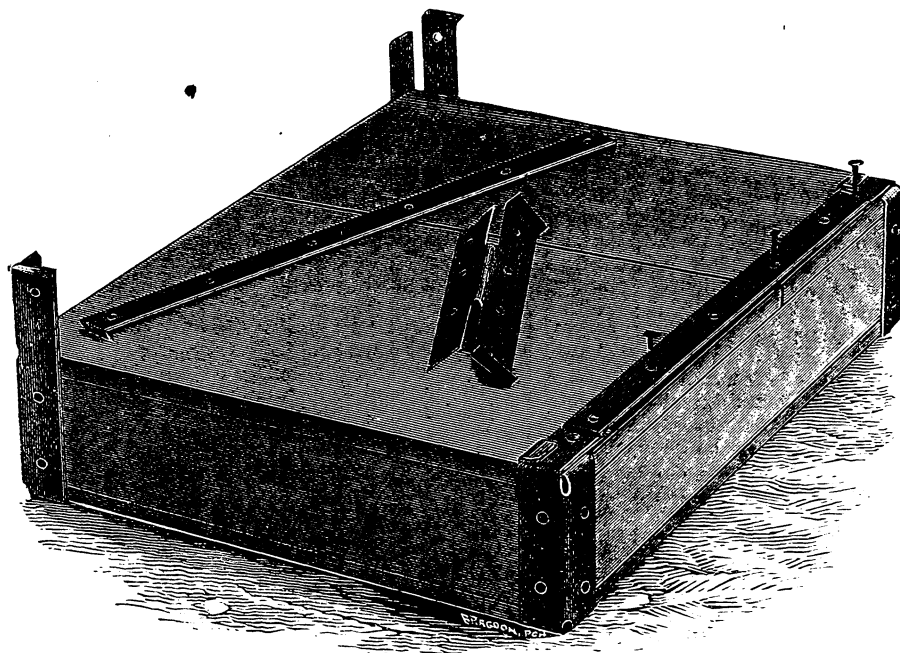
**Box Strap and Corner Iron.**

The accompanying cut represents a box strap and corner iron being introduced by Dunshee & Snowden, McKeesport, Pa. One of the straps and one of the corner irons are shown across the top of the box, in the cut, while straps and corners are fastened to the box, to show the manner in which they are applied. After the corner piece has been nailed in position its wings or ends at top and bottom are bent across one an-

adapted to boxes for tin plate, as shown in the cut, and that the corner irons and bottom strips are best put on during the construction of the box. Straps and corner irons suitable for boxes of any size are made to order.

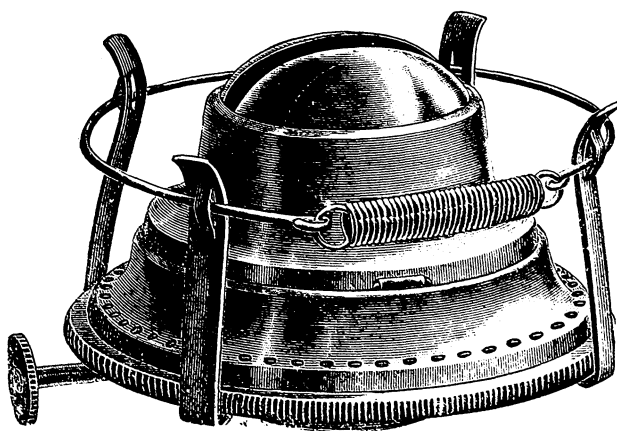
**Improved Security Burner.**

The accompanying cut represents an improved burner being introduced by the Bristol Brass & Clock Company,

*Box Strap and Corner Iron.*

other. One of the wings at each end has hook shaped ends, which are engaged with similar hook shaped ends on the strap pieces when put in position on the box and then hammered together. The straps and corners have counter-sunk holes, to allow the edges of the holes to be driven into the wood, and to prevent the nails or screws project-

Forestville, Conn., and 32 Warren street, New York. The improvement consists of a circular shaped wire, with a spiral spring connecting the ends. It is designed to secure the chimney in place and to make a hand lamp safe to carry about the house. The manufacturers claim that the burner secures a steady light, obviates accidents, results

*Improved Security Burner.*

ing beyond the surface of the metal. The side edges of the straps and corner irons are beveled or curved, to prevent the otherwise sharp edges of the irons catching against persons or other boxes, and to provide runners upon which the boxes may be easily slid. The object of the device is to adapt boxes of somewhat frail construction to receive and transport materials of great weight. The manufacturers remark that the straps and corner irons are well

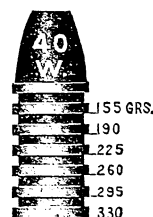
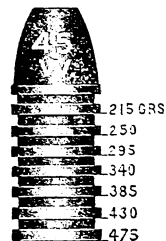
in better combustion and prevents chimneys falling off and breaking.

Meriden Bronze Company, 30 Park place, New York, in addition to several other recent departures in the way of supplementing their already large line of fine lamps, table and art goods, have just brought out an assortment of hall lanterns for gas in Venetian wrought iron work, consisting of many

attractive shapes and designs in dead black finish. There are also a number of chandeliers for gas of the same character of workmanship, together with a line of chandeliers of the same sort, finished in real gold plate, some of which also combine onyx effects. These goods were all prepared for the current season's trade and have just been placed in their showrooms.

**Ideal Bullets.**

The Ideal Mfg. Company, New Haven, Conn., have designed the bullets herewith shown for 45 caliber Sharp's rifles, or Ballard or Winchester rifles using 45-70 Sharp's shells  $2\frac{1}{16}$  inches, 45-90 Sharp's  $2\frac{5}{16}$  inches, 45-105 Sharp's  $2\frac{7}{16}$  inches and 45-120 Sharp's  $3\frac{1}{16}$  inches. It is remarked that these shells are nearly straight, and are loaded at the factory with patched bullets and not with grooved bullets. The cut 45 S illustrates a grooved bullet, or series of grooved bullets, for use in the above shells. It is cast in one of the Perfection molds, and represents seven different weights, ranging from 495 to 235 grains. The point is made that the forward part of the bullet is such that all the various weights shown carry sym-

*Ideal Bullets.*

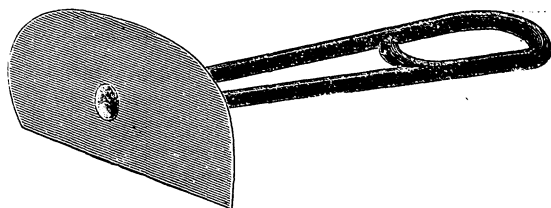
metry with them, none appearing out of balance. When desired a single mold of any of the weights shown may be had. The manufacturers state that the bullet represented in the 45 W cut covers the same ground for all of the 45-caliber Winchester rifles, such as 45-60-300, 45-70-350, 45-75-350, 45-90-300, 45-125-300. Attention is called to the fact that the forward part of this bullet is identical with all of the above 45-caliber Winchester, so that the bullets cast in these molds may be seated in the shells with the regular standard tools; thus those having the Winchester make of tools or the Ideal tools will require only the mold. The same may be said, it is stated, of the 40 W, for 40-60-210, 40-65-260, 40-82-260 and 40-110-260 Winchester rifles or others chambered for these cartridges. Thus, it is explained, bullets of various weights may be had, with which, with different charges of powder, the shooter may make his ammunition as he desires.

P. & F. Corbin, New Britain, Conn., and 24 Murray street, New York, several weeks ago placed several sets of

their double action butts (with automatic device to prevent sagging) on the heavy double swinging storm doors of the Equitable Building, 120 Broadway, this city. This place was selected so as to afford a severe test. The advantage claimed for this particular hinge

#### Smith's Novelty Scraper.

Fernando B. Smith, Canton, Ohio, is putting on the market the scraper herewith shown. The scraper is well and strongly made, a steel blade being attached to a malleable iron japanned



*Smith's Novelty Scraper.*

is that no matter from which side the door is opened, in closing it will never swing past the center, and that it cannot sag, thereby striking its mate or the jamb if it be a single door. Their liquid door check, which belongs to the set, closes the door gently and expeditiously, and there is no risk to a person following being struck by the door in returning to its position.

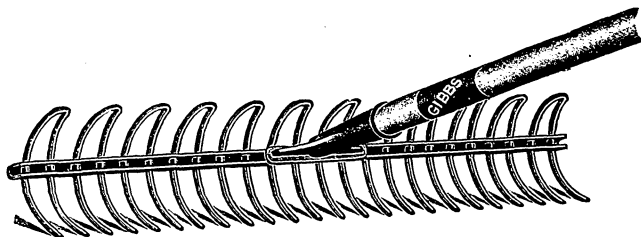
#### The Hustler Lawn Rake.

Gibbs Mfg. Company, Canton, Ohio, are putting the Hustler lawn rake on the market, as shown in the accompanying cut. The rake has a steel head bent to secure stiffness, in which the teeth are held. The socket is referred to as strong and firmly fastened to the

handle. The manufacturer remarks that with any kitchen utensil can be cleaned, whatever its shape—corners, angles, flat and round surfaces, any kind of kettles, sinks, chopping bowls, tables, cupboards, molding boards, rolling pins, bread and pudding pans, &c. It is further remarked that fish are easily cleaned with the scraper, and that it will be found useful for scraping walls preparatory to papering. The point is made that in its use the hands are not soiled, as it is not necessary to put them into hot or greasy water, and that all danger of cutting or burning the hands or tearing the finger nails is avoided.

#### Universal Brace.

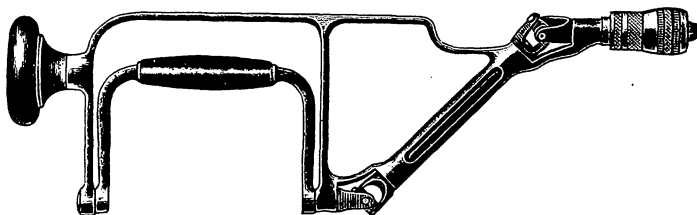
The accompanying cut represents the Universal brace which is being intro-



*The Hustler Lawn Rake.*

head without the use of rivets. The rake is coated with tin to give it a fine, bright finish and to prevent rust or its becoming shop worn. It is reversible, the single teeth for taking up cut grass and the double teeth for leaves and rubbish. The manufacturers claim that in either position a hood is had which gives more raking capacity; that the

duced by the National Mfg. Company, Wilkesbarre, Pa. The brace is described as having a light frame, rigid and strong, made of the best malleable iron, with a crank arm of steel resting in solid upper and lower journals in the frame. It is remarked that the universal joints merely convey the rotary motion of the crank arm to the bit spindle, and



*Universal Brace.*

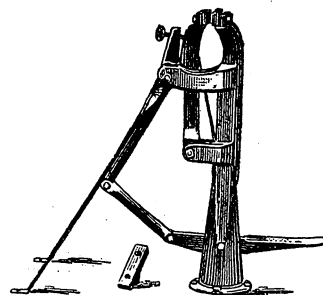
curve of the teeth is such as to run smoothly and rake clean without tearing the sod, and that the teeth do not clog, a backward motion cleaning all the teeth at once.

carry no other strains. It is further remarked that the prominent feature of the brace is convenient as well as effective operation, that the brace is readily and firmly controlled in any desired po-

sition with one hand, and that the working of the crank arm, as in the ordinary brace, is at right angles to the bit; thus the use of the tool is at once familiar and natural. The point is made that the construction of the brace shows a high grade of workmanship; that all parts are simple and durable, and that in case of damage any part can be duplicated. The tool is designed for boring and screw driving in angles, corners, close to washboards and walls, and in all places difficult to reach with the ordinary brace.

#### The Folsom Locking Vise.

The Kinsley Iron & Machine Company, Canton, Mass., are offering the locking vise illustrated herewith. The vise is described as being made of the best stock in every part, the jaws being of tempered steel of high grade and interchangeable. The locking parts are so made that a single pressure of the foot, it is stated, sets the jaws as though



*The Folsom Locking Vise.*

screwed up in a screw vise. The jaws are adjustable to different thicknesses of iron by means of the thumb screw near the top of the vise.

The base is made small, so as not to be in the way of the workmen's feet, and is secured to the floor by lag screws. The vise was designed especially for hot filed shoes, but, it is claimed, is equally serviceable for ordinary blacksmiths' work, and may be used in place of a screw vise.

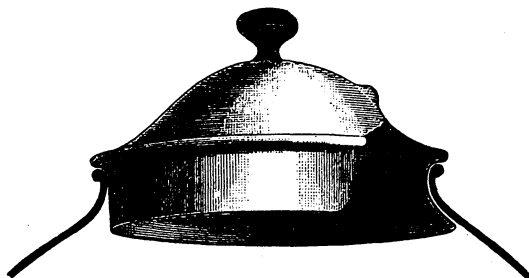
#### Linenoid Goods.

Crane Brothers, Westfield, Mass., manufacture a line of goods made of linenoid, including seamless pleasure boats, canoes, warehouse and mill baskets; butchers', grocers', bakers' and laundry baskets; desk, office and school baskets; bathtubs, washtubs, umbrella holders, &c. The manufacturers state that in making linenoid nothing is used but the strongest new linen stock, such as linen threads, canvas cuttings, &c., which, after being reduced to pulp in a beating engine, and chemically treated to render it impervious to water, is run on a cylinder machine into endless sheets of any size and thickness. It is then molded on wooden or iron forms, subjected to great heat and pressure, which, it is stated, results in a material that cannot be broken; that is light, tough, water proof, durable, taking a high polish, and similar in appearance to rawhide. It is remarked by the manufacturers that owing to their method of molding boats on forms, and thus making them seamless, they have what makers of wooden boats have been aiming to produce for years—absolute freedom from leakage. Another advantage mentioned is that, as there are no seams to open,

the boats are not affected by heat or cold, will not warp, crack or split, and gain no weight by use.

#### Hingeless Cover.

Stransky & Co., 27 Murray street, New York, are introducing hingeless covers, as shown in the accompanying

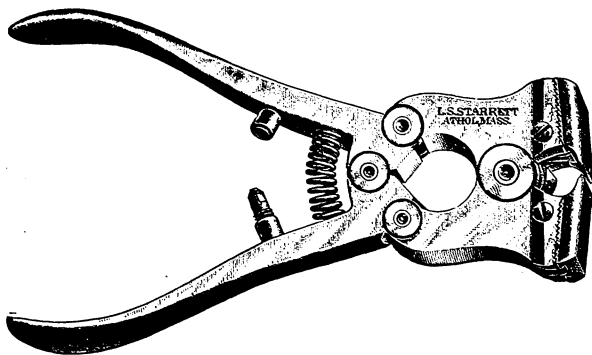


*Hingeless Cover.*

cut, in connection with their Cameo English tea pots. The breast of the pot is represented by the lines on each side of the rim of the cover. It will be noticed that one side of the rim corresponds to the shape of the breast lines, while the other side of the rim is straight, also that a small elevation on the cover above the rim indicates the point at which the flare of the rim is the most pronounced. In use the cover is placed on the tea pot so that the flare of the rim is at the back of the pot nearest the handle. As the pot is tipped forward the flare of the rim is to prevent the cover from falling off the pot. The cover is stamped from one piece of metal, which obviates the possibility of the rim coming off.

#### Starrett's Adjustable Jaw Cutnipper.

The adjustable jaw cutnipper, shown herewith, is put on the market by L. S. Starrett, Athol, Mass. The head and



*Starrett's Adjustable Jaw Cutnipper.*

handles are described as being made of drop forged steel, finely finished, and all parts case hardened except the jaws, which are made from a high grade of steel, nicely tempered. The jaws are detachable, so that they can be removed, ground and adjusted when they become worn. It is pointed out that each jaw can be ground away to the extent of  $\frac{1}{4}$  inch, remaining as good as new for practical use; and when used up, if ever, new jaws can be procured. The jaws have a dovetailed slot in their under side to receive a spline which extends into a slot in the frame. A tapering screw through the frame and spline draws the jaw firmly down to a toothed seat in the frame, holding it securely. The nipper has a flat spring below the

cutting edges and over the joint, forming a yielding seat for the end of the wire to press against while being cut. This spring is to obviate the breaking of the jaws, which might occur if the wire was inserted against a solid surface, thus creating a pushing out strain on the jaws when they are pressed together. Jaws warranted to stand for cutting music wire have the cutting

edge ground to a steep bevel. The jaws for general use, it is stated, are not ground to so acute an edge, and are better for cutting soft wire and for ordinary purposes. The tool shown in the cut is known as No. 1, and is 6 inches long. A larger size, we are advised, will be made later.

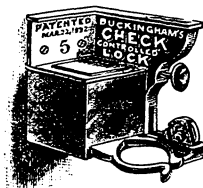
#### Metallic Weather Strips.

A line of metallic weather strips is being manufactured by W. H. Cosper Company, 63 and 65 South Canal street, Chicago, in connection with which, it is stated, the best quality of rubber is used. The strip is made of copper, brass, german silver and zinc. The copper strip has rubber of a deep maroon color to harmonize with many of the finest varieties of wood. German silver, brass and zinc strips have gray rubber. The manufacturers remark that the rubber will remain soft and pliable, being made for them, and after being

write perfectly smooth upon any school slate without injuring the slate's surface. The point is made that the pencil can be used two or three years, as no sharpening is required, and that the markings can be quickly erased with a damp sponge or cloth.

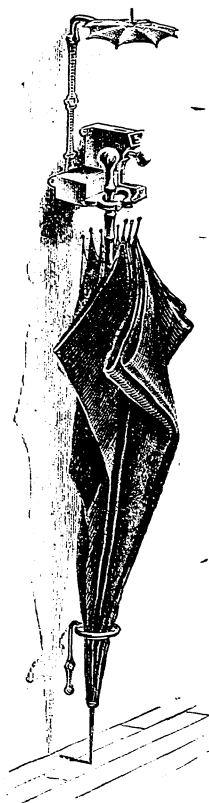
#### Buckingham's Check Controlled Umbrella Lock.

The accompanying cuts represent an umbrella lock controlled by a check, which is offered by the Check Controlled Lock Company, Cleveland, Ohio. The



*Fig. 1.—Buckingham's Check Controlled Umbrella Lock.*

lock, as shown in Fig. 1, consists of a nickel plated box, with movable circular arms at the bottom, in which the handle of the umbrella is held. The box is also provided with a slot, into which the check is dropped, and a push button. As in Fig. 2, an ornamental cap surmounts the box, to prevent the umbrella or cane from being lifted up and out of the locked arms; and a ring is placed under the box to receive the



*Fig. 2.—Lock and Other Parts in Position.*

lower part of the article. The check is a brass disk, with grooves to correspond with projections at the mouth of the slot. In operation the check is dropped into the slot at the top of the box; the box is unlocked only when the check is inside. The umbrella is

cured to a certain degree of temperature it is subjected to a test before being used. The strip is regularly cut into 7-foot lengths, tied up 36 pieces to the bundle, four bundles for 1000 feet; this allows 8 feet for waste in each 1000 feet. The strip is designed for use on cars, residences, &c.

The American Aluminum Pencil Company, Cincinnati, Ohio, are adapting aluminum as a material for slate pencils. The handle is of red enameled wood, similar in appearance to a penholder, attached to which by means of a ferrule is a point of pure aluminum, over 1 inch long, thoroughly finished with chemical processes so as to make it

then stood in the lower ring, the handle between the arms, and after they snap shut the button is pressed, the pressure being continued until the checks roll out into view, as in Fig. 1. The umbrella is then locked up. The point is made that an umbrella can thus be put in without wrapping it up, thus allowing it to drip and dry.

The owner keeps the check in his possession while his umbrella remains in the lock. The locks are designed to secure umbrellas against borrowers and others, and are recommended for use in hotels, halls, churches, libraries, art galleries, business houses, billiard rooms, barber shops, club houses, offices, flats, residences and other places.

Union Skate Sharpener.

The Union Hardware Company, Torrington, Conn., and 95 Chambers street, New York, are putting a skate sharpener on the market, as shown in Fig. 1.

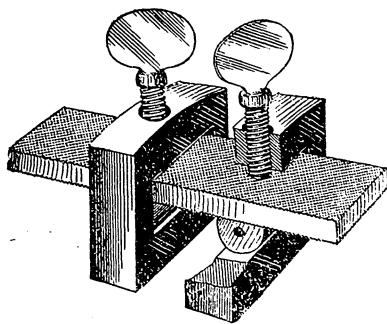


Fig. 1.—Union Skate Sharpener.

A file 1½ inches long, ¼ inch wide, is held in two metal frames by set screws. The file rests on rollers, one side of which is flattened, to allow the frames to be adjusted to any make or style of runner. In Fig. 1 one of the frames is cut away to show the position of the screw and roller. In operation the sharpener is adjusted to the skate as in Fig. 2, and is pushed forward and backward on the runner. The manufacturers claim that the article sharp-

ens perfectly with little labor; that to use it requires no practice or skill, a child being able to do as good work as a machine shop; that being composed of but three pieces it is easily adjusted at once; that the sharpening is done

with a file set in frames, and can be so adjusted that there is no chance to do anything but perfect work, and that it can be carried in the pocket, always ready for work.

**Improved Lamp.**

Clark Bros. Lamp, Brass & Copper Company, 43-45 College Place, New York, and Trenton, N. J., whose plant is operated by the American Lamp & Brass Company, are introducing an improved center draft lamp, the main features of which are alluded to by them as follows: The fount has sufficient oil capacity to burn eight hours. There is a patented feeder cup, with double seating, making it oil tight, also a lift guide of extra length. A patented concave chimney gallery contains 1080 extra large perforated air conductors, making, it is remarked, by improved combustion a reduction in heat equivalent to 40° F. by actual test. There is likewise a new chimney lift and beaded top center tube to keep the flame spreader from direct contact with the wick, thereby preventing the weeping of oil down the center tube. It is also provided with an improved wicking device. This lamp carries an 8-inch wick.

THE DEATH is announced in the English journals of Henry Harrison, one of the founders of the well-known Sheffield Cutlery firm of Harrison Brothers & Howson of that city. The present Master Cutler of Sheffield, George Howson, is a member of the firm.

A METHOD HAS BEEN ADOPTED by the W. Bingham Company, Cleveland, Ohio, for calling attention to special goods, which is unique in its conception and bids fair to make an effective appeal to the trade. An open letter to the trade, the first of a promised series, one of which is to be sent each month, is issued in circular form, and comes "From the corner desk." "The man in the corner" writes in an interesting, social way, combining valuable suggestions about increasing trade with mention of desirable goods with which to supply the trade. Carvers are the

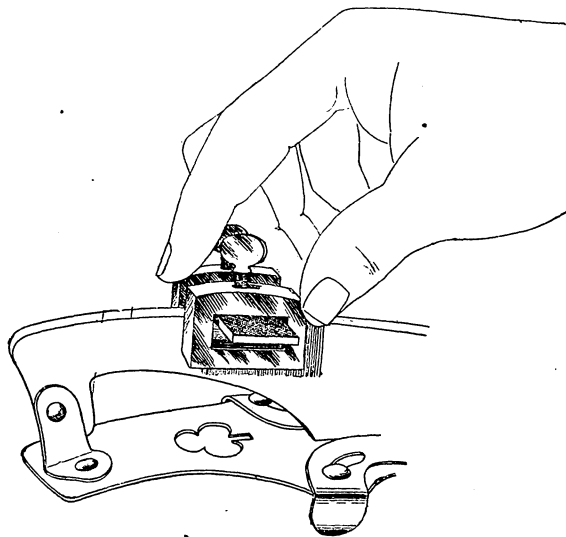


Fig. 2.—Skate Sharpener in Use.

line to which particular attention is directed in the November letter. An attractive representation is given on the front cover of the man at his desk in the corner, while on the back cover are cuts of Carvers in cases.

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# Current Hardware Prices.

NOVEMBER 15, 1893.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

## Adjusters, Blind—

Domestic..... doz \$3.00, 33% @ 33% & 10%  
Excelsior..... doz \$10.00..... 60&10&22  
North's..... list net @ 10%  
Zimmerman's—See Fasteners Blind.

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anvils—

Eagle Anvil, 8 in. 15&15&5  
Peter Wright's..... 11&11%  
S. & H., machine finished..... 10% @ 11%  
Armstrong's Mouse Hole..... 10% @ 11%  
Am. Wrought Horsehoe brand..... 11&11%  
Trenton..... 10% @ 11%  
Wilkinson's..... 10% @ 11%  
Moore & Barnes Mfg. Co..... 33% @

## Anvil Vise and Drill—

Millers Falls Co., \$18.00..... 20%  
Cheney Anvil and Vise..... 25%  
Allen Anvil and Vise \$3.00..... 40&10%  
Star..... 45&25%

## Apple Parers—See Parers Apple, &c.

## Augers and Bits—

Common Augers and Bits..... 70&70&10%  
Boring Machine Augers..... 70&70&10%  
Car Bits, 12-in. twist..... 60%  
Russell Jennings' Augers and Bits..... 25&10%  
Jennings' Pattern Car Bits..... 40%  
Jennings' Pattern Auger Bits..... 60%  
Snell's Bits..... 60%  
C. E. Jennings' & Co., No. 10, extension lip..... 40%  
C. E. Jennings' & Co., No. 30..... 60%  
C. E. Jennings' & Co., Auger Bits, set..... 32%  
quarters, No. 5, \$5; No. 30, \$3.50, 25%  
Lewis' Patent Single twist..... 45%  
Pugh's Black..... 30%  
Pugh's Jennings Pattern..... 20%  
L'Hommiedieu Car Bits..... 15&10%  
Forstner Pat. Auger Bits..... 15%  
Cincinnati Bell-Hangers' Bits..... 30&10

## Bit Stock Drills—

Morse Twist Drills..... 50&10&5%  
Standard..... 50&10&5%  
Cleveland..... 50&10&5%  
Syracuse, for metal..... 50&10%  
Syracuse, for wood (wood list)..... 30&50&5%  
Cincinnati, for wood..... 30&10%  
Cincinnati, for metal..... 45&10%

## Expansive Bits—

Clark's small, \$18; large, \$26..... 35&35&10%  
Ives' No. 4, 4 doz. \$80..... 40%  
Swan's..... 40%  
Stearns, No. 1, \$26; No. 2, \$18..... 35&40%  
Stearns No. 2, \$48..... 20%

## Gimlet Bits—

Common..... gross \$2.75 @ \$3.25  
Diamond..... doz \$1.25..... 40&10%  
Bee..... 25&25&5%  
Double Cut..... 45&45&10%  
Shepardson's..... 45&45&10%  
Ct. Valley Mfg. Co..... 30&10%  
Hartwell's..... gross \$10.00..... 40&10%  
Douglass..... 40&10%  
Ives..... 60&60&10%

## Hollow Augers—

Ives' French, Swift & Co. (Beecher)..... 33% @ 33% & 10%  
Douglass' Adjustable, doz \$48..... 50%  
Stearns' Adjustable, doz \$48..... 20&10%  
Ives' Expansive, each \$4.50..... 50&5%  
Universal Expansive, each \$4.50..... 20%  
Wood's..... 25&25&10%  
Cincinnati Adjustable..... 25&10%  
Cincinnati Standard..... 25&10%

## Ship Augers and Bits—

L'Hommiedieu's..... 15&10@15&10&5%  
Watrous..... 25&25&10%  
Snell's Ship Auger Pattern Car Bit..... 15&10@15&10&5%

## Awl Hafts—See Hafts, Awl.

## Awls—

Awls, Sewing, Common..... gr. 35 @ 90¢  
Awls, Should. Peg..... gr. \$1.50 @ \$1.55  
Awls, Pat. Peg..... gr. 35 @ 38¢  
Awls, Shouldered Brad..... gr. \$1.30 @ \$1.40  
Awls, Handled Brad..... gr. \$2.50 @ \$3.00  
Awls, Handled Scratch..... gr. \$4.00 @ \$5.00  
Awls, Socket Scratch..... doz. \$1.10 @ \$1.20

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

First quality, best brands..... \$7.00  
First qual., other brands..... 6.50  
Second quality..... 5.50

## Axle Grease—See Grease, Axle.

## Axles—

No. 1..... 3% @ 4¢; 4% @ 5¢  
Nos. 7 to 14..... 70%  
Nos. 15 to 22..... 47%  
Nos. 19 to 28..... 70%  
Concord Axles, loose collar..... 4% @ 5¢  
Concord Axles, solid collar..... 5¢ @ 6¢

## Bag Holders—See Holders, Bag.

## Balances—

Spring Balances..... 40%  
Chatillon, No. 20, 20 30..... 40%  
Chatillon, No. 20, 20 30..... 40%  
Chatillon, No. 20, 20 30..... 40%  
Chatillon Circular Balances..... 50&10%

## Barb Wire—See Wire, Barb.

## Bars—

Crow—  
Cast Steel..... doz 3%  
Iron, Steel Points..... doz 3%

## Basins, Wash—

Standard Fiberglass, No. 1, 10 1/2 in., \$1.80;  
12-inch, \$2.00; 18 1/4 inch, \$2.50; 15-inch,  
\$3.00.

## Beams, Scale—

Scale Beams, List Jan. 12, '82..... 60&10%  
Chatillon's No. 1..... 40%  
Chatillon's No. 2..... 50%  
Custer's..... 33% @

## Beaters—

Egg—  
Dover..... doz \$1.00 @ \$1.20  
Duplex (Standard Co.)..... doz \$1.00  
Dover (Standard Co.)..... doz \$1.00  
Duplex Extra Heavy (Standard Co.)..... doz \$3.50  
Bryant's..... gross \$14.00  
Double (H. & R. Mfg. Co.)..... gross, No. 0  
\$12.00; No. 1, \$15.00; No. 2, \$36.00  
Egg (H. & R. Mfg. Co.)..... gross \$12.00  
Triple (H. & R. Mfg. Co.)..... gross \$16.50  
Spiral..... gross \$4.25 @ \$4.50  
Improved Acme (H. & R. Mfg. Co.)..... gross \$9.50  
Silver & Co..... doz \$5.00

## Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;  
No. 2, \$2..... 20%

## Bells—

Cow—  
Common Wrought..... 60&10%  
Western, Sargent's list..... 70&10%  
Kentucky, "Star"..... 70&10%  
Kentucky Sargent's list..... 70&10%  
Kentucky Durham..... 70&10%  
Dodge, Genuine Kentucky..... 70&70&10%  
Texas Star..... 50&10@50&10&5%

## Door—

Gong, Abbe's..... 33% @ 40%  
Gong, Barton's..... 40&10@50%  
Crane, Brooks'..... 50&10&2%  
Crane, Cone's..... 10%  
Crane, Cone's..... 20&10%  
Lever, Sargent's..... 60&10%  
Lever, Taylor's Bronzed or Plated..... 25&10%  
Lever, B. & E. Mfg. Co.'s..... 50&10&2%  
Pull, Brook's..... 50&10&2%

## Electric—

Wollensak's..... 20%  
Bigelow & Dowse..... 20%

## Hand—

Light Brass..... 70&10@70&10&5%  
Extra Heavy..... 70%  
White..... 33% @ 40%  
Silver Chime..... 33% @ 40%  
Globe Cone's Patent..... 25&10@35%

## Miscellaneous—

Call..... 45&50%  
Farm Bells..... 25% @ 33%  
Steel Alloy Church and School Bells..... 40%

## Bellows—

Blacksmiths'..... 60&10&5@60&10&10%  
Molders'..... 40&10@50%  
Hand Bellows..... 40&10@50%

## Belting, Rubber—

Common Standard..... 75&75&10%  
Standard..... 70&5@70&10%  
Extra..... 60&10@60&10&10%  
N.Y.B.&P. Co., Carbon..... 60&60&5%  
N.Y.B.&P. Co., Diamond..... 50&50&5%  
N.Y.B.&P. Co., Para..... 40&40&5%

## Bench Stops—See Stops, Bench

## Benders and Upsetters, Tire—

Stoddard's Lightning Tire Upsetters..... 15%  
Detroit Perfect Tire Bender..... 15%  
Green River Tire Benders and Upsetters..... 20%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.,  
see Augers and Bits.

## Bit Holders—See Holders.

## Blind Adjusters—See Adjusters, Blind.

## Blind Fasteners—See Fasteners, Blind.

## Blind Staples—See Staples, Blind.

## Blocks—

Cleveland Block Co., Mal. Iron, 60&60&10%  
Moore's Novelty, Mal. Iron..... 50%  
Sure Grip Steel Tackle Blocks..... 25%  
See also Machines, Hoisting.

## Bolts—

## Carriage, Machine, &c.—

Comm. list June 10, '84..... 80&10@80&20%  
Genuine Eagle, Norway, list Oct. '84..... 80&80&10%  
Eagle, Norway, list Oct. '84..... 80&80&10%  
Phila. pattern, list Oct. 7, '84..... 80%  
R.B. & W., old list..... 70%  
Machine, list Jan. 1, 1890..... 80&10@80&25%  
Bolt Ends, list Jan. 1, 1890..... 80&10@80&25%

## Door and Shutter—

Cast Iron Barrel, Square, &c..... 70&10%  
Cast Iron Shutter Bolts..... 70&10%  
Cast Iron Chain (Sargent's list)..... 65&10%  
Ives' Patent Door Bolts..... 60&10@60&10&5%  
Wrought Barrel..... 70&10@75%  
Wrt Shutter, all iron, Stanley's..... 60&10@60&10&10%  
Wrt Shutter, Brass Knob..... 50&50&5%  
Wrt Shutter, Sargent's list..... 60&10%  
Wrt Sunk Flush, Sargent's list..... 60&10%  
Wrt Sunk Flush, Stanley's list..... 60&10&5%  
Wrt B. K. Flush, Common..... 55&10%

## Stove and Plow—

Stove..... 60&10@60&10&10%  
Plow..... 60&10&50@60&10&10%  
R. B. & W., Plow..... 65%

## Tire—

Common, list Feb. 23, '83..... 65&65&5%  
Port Chester Bolt and Nut Company..... 65%  
Empire list Feb. 23, '83..... 65%  
Keystone, Philadel., list Oct. '84..... 80%  
Norway, Phila., list Oct. '84..... 75%  
American Screw Company..... 75%  
Norway, Phila., list Oct. 16, '84..... 80%  
Eagle, Phila., list Oct. 16, '84..... 80%  
Philadel., list Oct. 16, '84..... 80%  
Bay State, list Feb. 23, '83..... 65%  
R. B. & W., Philadel., list Oct. 16, '84..... 80%

## Borers, Tap—

Common and Ring..... 20&10%  
Ives' Tap Borer..... 33% @ 45%  
Enterprise Mfg. Co..... 20%  
Clark's..... 33% @ 35%

## Borax—

Per doz..... 9% @ 10% @

## Boring Machines—See Machines, Boring.

## Bow Pins—See Pins, Bow.

## Boxes, Wagon—

Per doz..... 2% @

## Boxes, Miter.

Spiker's Excelsior, 3 in. \$7.50, 4 in. \$8.50, 5 in. \$13.00, 6 in. \$15.00..... 20%

## Braces—

American Bit Brace and Tool Co.  
Nos. 10, 12, 20..... 60&10%  
Nos. 11, 21, 24, 27..... 70&10%  
Nos. 22, 23, 25..... 60&10&5%  
Nos. 13, 26, 36, 37..... 70&10&5%  
Adison's..... 75&10@80%  
Barker's Imp'd Plain..... 65&10@70%  
Barker's Imp. Nickleled..... 75&10@80%  
Ratchet..... 60%  
Eclipse Ratchet..... 40&40&10%  
Globe Jawed..... 40&40&10%  
Corner Brace..... 40&40&10%  
Universal, 8 in., \$2.10; 10 in. \$2.25  
Buffalo Ball..... \$1.10 @ \$1.15  
Barber's..... 60&10%  
Saxton's..... 75&10@80%  
Barker's Imp. Polished..... 65&10@70%  
Ratchet, Polished..... 60&10@60%  
Ratchet, Nickleled..... 40&40&10%  
Bartholomew's..... net \$1.10 @ \$1.15  
Nos. 25, 27 and 30..... 50&10@60&5%  
Nos. 117, 113, 119..... 70&70&5%  
Common Ball, American..... \$1.00 @ \$1.10  
Fray's Genuine Sportford's..... 50&50&10%  
Fray's Nos. 70 to 120, 81 to 123, 207 to 414..... 60&10%  
Ives' New Haven Novelty..... 70&70&5%  
New Haven Ratchet..... 60&5@60&10%  
Barber Ratchet..... 60&5@60&10%  
Barber's..... 60&5@60&10%  
Sportford..... 60&5@60&10%  
P. S. & W. Co., Peck's Patent..... 50%  
Roulet Patent..... 50%  
Davis Patent..... 60&10%

## Brackets—

Shelf, plain..... 65&70%  
Sargent's list..... 60&10@70&10%  
Shelf, fancy..... 70&70&10%  
Other makes at a wide range of prices.  
Bradley Shelf Brackets..... 70&10%

## Bright Wire Goods—See Wire.

## Broilers—

Best Self-Inch..... 0 10 11  
Bentling } Per doz. \$4.50 5.50 6.50  
New Haven..... 50%  
Wire Goods Co..... 65&10%  
Morgan Odorless..... doz. \$12.50  
Queen City..... 33% @

## Buckets, Well—

Galvanized—  
Hill's..... doz. 12 qt. \$4.25; 14 qt. \$5.25  
Iron Clad..... doz. 14 qt. \$4.25 @ \$4.50  
Helwig's Flat Iron Band..... \$3.75  
Helwig's Wired Top..... doz \$4.00

## Bull Rings—See Rings, Bull.

## Butcher's Cleavers—See Cleavers, Butcher's.

## Butts—

Brass—  
Wrought Brass..... 80&50&10%  
Cast Brass, Tiebout's..... 50%  
Cast Brass, Fast..... 33% @ 10%  
Cast Brass, Loose Joint..... 33% @ 10%

## Cast Iron—

Fast Joint, Narrow..... 50&10&5@60%  
Fast Joint, Broad..... 50&10@60%  
Loose Joint..... 75&5@  
Loose Joint, Japanned..... 75&10  
Loose Joint, Jap. with Acorns..... 75&10  
Parliament Butts..... 75&10  
Mayer's Hinges..... 75&10  
Loose Pin, Acorns..... 75&10  
Loose Pin, Acorns, Japanned..... 75&10  
Loose Pin, Acorns, Japanned, Plated Tips..... 75&10

## Wrought Steel—

Fast Joint, Narrow..... 50&10@50&10%  
Fast Joint, L. Narrow..... 50&10@50&10%  
Fast Joint, Broad..... 50&10@50&10%  
Loose Joint, Broad..... 50&10@50&10%  
Table Butts, Back Flaps, &c..... 50&10@50&10%  
Inside Blind, Regular..... 50&10@50&10%  
Inside Blind, Light..... 50&10@50&10%  
Loose Pin..... 50&10@50&10%  
Bronzed Wrought Butts..... 50&50&10

## Cages, Bird—

Hendryx, Brass or Enameled..... 50&10%  
Hendryx, Wood..... 40&10%

## Calipers—See Compasses.

## Calks, Toe—

Gautier, One Prong, Blunt..... 5% @ 6¢  
Burke's One Prong, Blunt..... 5% @ 6¢  
Burke's Two Prong, Blunt..... 7% @ 8¢  
Burke's One Prong, Sharp..... 6% @ 7¢

## Can Openers—See Openers, Can.

## Cans, Milk—

S. S. & Co., 5-gal., \$3.00; 8-gal., \$4.40;  
10-gal., \$4.75 each..... 40&10

## Cans, Oil—

Galvanized Blue Band, 5 gal., Tip-Top..... doz. \$12.00  
Galvanized Blue Band, 5 gal. Faucet..... doz. \$8.00  
Galvanized Blue Band, 1 gal. doz. \$2.25  
Glass Oil, Friend..... doz. \$2.75

## Caps—

Percussion—  
Hicks & Goldmark's and Union Metallic  
Cartridge Co. \$1000  
F. L. Waterproof, 1-10's..... 35&37¢  
E. B. Trimmed Edge, 1-10's..... 47&50¢  
E. B. Grnd. Edge, Cent. Fire, 1-10's..... 47&50¢  
Musket, Waterproof, 1-10's..... 27&30¢  
G. D..... 27&30¢  
S. B. Genuine Imported..... 45¢  
Eley's E. B..... 56&58¢  
Eley's D Waterproof, Central Fire, \$1.60

## Primers—

Berdan Primers, \$1.00..... 2%  
B. L. Caps (Sturtevant Shells) \$1.00..... 2%  
All other Primers, \$1.20..... 2%

## Cards—

Watson's Cotton, Wool, Horse and  
File, list January 23, 1891..... 25%

## Carpet Stretchers—

See Stretchers, Carpet.

## Cartridges—

Rim Fire Cartridges..... 50&52¢  
Rim Fire Military..... 15&22¢  
Cent. Fire, Pistol and Rifle..... 25&25&2%  
Cent. Fire, Military and Sporting..... 15&22¢  
Blank Cartridges, except 22 and 32 cal.,  
additional 10% to above discounts.  
Blank Cartridges, 22 cal., \$1.75..... 2%  
Blank Cartridges, 32 cal., \$3.50..... 2%  
Primed Shells and Bullets..... 15&5&2¢  
B. B. Caps, Round Ball, \$1.75..... 2%  
B. B. Caps, Con. Ball, Swgd., \$2.00..... 2%

## Carpet Sweepers—

See Sweepers, Carpet.

## Casters—

Bed..... Brass..... 55&55&10%  
Plate..... Others..... 60&60&10%  
Shallow Socket..... 40&10%  
Deep Socket..... 40&10%  
Martin's Patent (Phoenix)..... 45&10@50&10%  
Tucker's Patent, low list..... 70&70&10%  
Payson's Anti-friction..... 60&60&10%  
Payson's Truck..... 60&60&10%  
Yale Casters, low list..... 45%  
Yale, Gem..... 35%  
Giant Truck Casters..... 50&10%  
Stationary Truck Casters..... 50&10%  
Socket Truck Casters..... 50&10%  
Gwinner's Common Sense..... 45%  
Gwinner's Hercules..... 45%

## Cattle Leaders—

See Leaders, Cattle.

## Cement—

Victor Elastic..... 5 m pails @ 15¢

## Chain—

Trace, Wagon and Fancy Chains,  
List revised May, 1893..... 60&60&10%  
American Coll, in cast lots,  
3-16 1/2 5-16 1/2 7-16 1/2 9-16 1/2 11-16 1/2 13-16 1/2 15-16 1/2 17-16 1/2 19-16 1/2 21-16 1/2 23-16 1/2 25-16 1/2 27-16 1/2 29-16 1/2 31-16 1/2 33-16 1/2 35-16 1/2 37-16 1/2 39-16 1/2 41-16 1/2 4

**Chalk Lines—See Lines.****Checks, Door—**

Unity	50%
<b>Chisels—</b>	
<b>Socket Framing and Firmer</b>	
P. S. & W.	
New Haven	
Witherby	75%100%75%100%
Mit	
Ohio Tool Co.	
Douglas	75%75%5%
Buck Bros	30%
Merrill	60%100%60%100%
L. & J. White	30%30%5%

<b>Tanged and Miscellaneous</b>	
Tanged Firmers	50%50%10%
Butchers	\$4.75 to \$5.00 to 2
Spears & Jacks	\$5 to 2
Buck Bros	30%
Cold Chisels, fair quality, # 14	14%16%

**Chucks—**

Beach Pat.	each, \$8.00, 20%
Morse's Adjustable, each, \$7.00, 20% to 25%	
Danbury	each, \$6.00, 30% to 35%
Syracuse, Bais Pat.	25%
Graham Patent	35%
Skinner's Patent Chucks	35%
Combination Lathe Chucks	35%
Universal Lathe Chucks	40%
Independent Lathe Chucks	40%
Drill Chucks	15%
Union Mfg. Co.	
Victor	\$3.50, 25%
Combination	40%
Universal	40%
Independent	40%

**Churns—**

Tiffin Union, each, 5 gal. \$3.25; 7 gal., \$3.75; 10 gal., \$4.25.	
McDermid Star Barrel Churn, each 6 gal., \$2.60; 10 gal., \$2.75; 15 gal., \$3.00; 20 gal., \$3.25.	

**Clamps—**

R. I. Tool Co.'s Wrought Iron	25%
Adjustable, Cincinnati	15%10%
Adjustable, Hammers	15%15%5%
Adjustable, Stearns	30%30%10%
Stearns' Adjustable Cabinet and Corner	30%30%10%
Cabinet, Sargent's	70%10%
Carriage Makers', P. S. & W. Co.	40%10%
Carriage Makers', P. S. & W. Co.	40%10%
Eberhard Mfg. Co.	40%40%10%
Warner's	40%10%40%10%
Saw Clamps, see Vises, Saw Filers	
Carpenter's, Cincinnati	25%10%
Barnes' Machinists' Clamps	35%3%

**Cleavers, Butchers—**

Bradley's	25%30%
L. & J. White	20%35%
Beatty's	40%40%5%
New Haven Edge Tool Co.'s	40%40%
P. S. & W.	35%35%35%10%
Foster Bros.	30%
Schulte, Lohoff & Co.	40%40%5%

**Clips—**

Norway, Axle, 1/4 & 5-16	55%55%5%
2d grade Norway Axle, 1/4 & 5-16	65%55%
Superior Axle Clips	65%85%70%
Norway Spring Bar Clips, 5-16	60%85%5%
Wrought Iron Fellow Clips	5%
Steel Fellow Clips	5%
Baker Axle Clips	25%

**Cloth and Netting, Wire—**

—See Wire, &c.

**Cocks, Brass—**

Hardware list (Globe, Kerosene, Lever, Bibbs, Racking, &c.)	60%25%60%10%
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**Coffee Mills—See Mills, Coffee.****Collars, Dog—**

Chapman Mfg. Company, new list	40%
Medford Fancy Goods Co.	40%10%50%
Embossed, Gift, Pope & Stevens' list	30%4%
Leather, Pope & Stevens' list	40%
Brass, Pope & Stevens' list	40%

**Combs, Curry—**

Fitch's	50%10%50%10%10%
Rubber, per doz, \$10.00	25%
American Curry Comb Co.	35%40%
Kohler's Magic, Eccentricating	\$ doz, \$2.00
Kohler's Humane	\$ doz, \$1.75

**Compasses, Dividers &c.**

Compasses, Callipers, Dividers, 70%10%75%	
Bemis & Call Co's	
Dividers	65%
Compasses	60%5%
Callipers, Inside or Outside	65%
Callipers, Wing	60%
Callipers, Double	65%
Callipers, Call's Patent Inside	65%
Excelsior	60%
Stevens & Co's	25%10%
Starrett's	
Spring Callipers and Dividers	25%10%
Lock Callipers and Dividers	25%
Combination Dividers	25%

**Coilers, Water—**

S. S. & Co., 2 gal., 3 gal., \$2.50; 4 gal., \$2.75; 6 gal., \$3.40 each	35%5%
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**Coopers' Tools—**

—See Tools, Coopers'.

**Cord—**

<b>Sash—</b>	
Common	# 8, 8% to 9%
Patent, good quality	# 10, 11%
White Cotton Braided, fair	# 10, 25% to 24%
Common Russia Sash	# 12, 13% to 13%
Patent Russia Sash	# 12, 13% to 14%
Cable Laid Italian Sash	# 12, 13% to 14%
India Cable Laid Sash	# 12, 13% to 12%
Silver Lake	
A quality, White, 50%	25%
A quality, Drab, 55%	25%
B quality, White, 30%	10%
B quality, Drab, 35%	10%
Sylvan Spring, Extra Braided, White	10%
Sylvan Spring, Extra Braided, Drab	30%
Semper Idem, Braided, White	26%
Egyptian, India Hemp, Braided	26%
Massachusetts, White	25%
Samson	
Braided, White Cotton	# 8, 37%
Braided, Drab Cotton	# 8, 42%
Braided, Italian Hemp	# 8, 40%
Braided, Linen	# 8, 56%
Tate's Solid Braided—	
Hercules, White	# 8, 25%
Hercules, Drab	# 8, 30%
Economy, Drab	# 8, 27%
Economy, White	# 8, 22%
Ossawaun Mills—	
Braided, Giant, White, # 8 30%	20%
Braided, Giant, Drab and Fancy, # 8 35%	10%

Braided, Crown White, # 8, 50%	50%
Braided, Crown Drab and Fancy, # 8, 55%	50%

**Wire Picture—**

Braided or Twisted	30%5%80%15%
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**Corkscrews—See Screws, Cork.****Corn Knives and Cutters—**

—See Knives, Corn.

**Crackers Nut—**

Table (H. & B. Mfg. Co.)	40%
Blake's Pattern, # doz, \$2.00	10%
Turner & Seymour Mfg. Co.	50%
Acme	
Jannaped, # gro, \$30	50%
Nickel Plated, # gro, \$30	10%

**Cradles—**

Grain	50%2%50%5%2%
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**Crayons—**

White Crayons, # gross	70%8%
D. S. Stewart Mfg. Co.	
Metal Workers', # gross, \$1.75	25%
Rolling Mill, # gross, 2.50	25%
Railroad, # gross, 2.00	25%
Soapstone Pencils, # gross, 1.00	25%
See also Chalk	

**Creamery Pails—See Pails, Creamery.****Crow Bars—See Bars, Crow.****Curry Combs—**

—See Combs, Curry.

**Curtain Pins—**

—See Pins, Curtain.

**Cutters—Meat—**

Dixon's, # doz	40%40%5%
Nos. 1 2 3 4	
Woodruff's, # doz	40%40%5%
Nos. 1 2 3 4	
Hale's, # doz	15%10%15%
Nos. 1 2 3 4	
American	35%
Nos. 1 2 3 4 B 5	
Each	\$5 \$7 \$10 \$25 \$50 \$80
Enterprise	25%
Nos. 10 12 22 32 42	
Each	\$3 \$2.50 \$4 \$6 \$15
Little Giant, # doz	40%10%50%
Nos. 305 310 312 320 322	
\$35.00 \$48.00 \$44.00 \$72.00 \$68.00	
Triumph No. 505, # doz, \$21.00, 25%30%	
Milch Challenge, # doz, \$5.00, 25%45%10%	
Nos. 1 2 3 4	
Home No. 1, # doz, \$28.00, 55%10%	
Draw Cut, each:	
Nos. 5 2 6 8	
Nos. 50 \$75 \$80 \$225	20%25%
Beef Shavers (Enterprise)	20%
Chadborn's Smoked Beef Cutter, # doz	\$66.00

**Slaw and Kraut—**

Tucker & Dorsey Mfg. Co.	
Slaw Cutters, 1 Knife, # gross, \$21.00	
Slaw Cutters, 2 Knife, # gross, 30.00	
Kraut Cutters	40%

**Tobacco—**

Champion	20%10%90%
All Iron	20%10%90%
Nashua Lock Co.'s, # doz, \$18.00, 60%55%	
Wilson's	55%
Sargent's	\$ doz, \$24.00, 55%10%
Acme	\$ doz, \$20.00, 40%

**Washer—**

Smith's Pat.	\$ doz, \$12.00, 20%10%10%
Johnson's	\$ doz, \$11.00, 35%
Penny's	\$ doz, \$14.00, 55%
Appleton's	\$ doz, \$18.00, 60%10%
Bonney's	30%10%
Cincinnati	25%10%

**Diggers, Post Hole, &c.—**

Samson, # doz, \$34.00	25%25%10%
Fletcher Post Hole Augers, # doz, \$36.00	
Gibbs' Columbia	\$ doz, \$20.00, 10%
Eureka Diggers	\$ doz, \$12.00, \$13.00
Vaughan's Post Hole Auger, # doz	
Kohler's Little Giant	\$ doz, \$8.50, \$9.50
Kohler's Hercules	\$ doz, \$18.00
Kohler's Invincible	\$ doz, \$14.00
Kohler's New Champion	\$ doz, \$12.00
Schneider	\$ doz, \$18.00
Cronk's Post Bars, # doz, \$60.00	
Gibb's Post Hole Digger	\$ doz, \$15.00
Gibbs' National	\$ doz, \$12.00
Gibbs' Columbia	\$ doz, \$13.00
Gibbs' Imperial	\$ doz, \$7.50
Shimer's Hollow Handle	\$ doz, \$24.00, 50%
Gem, Improved # doz, \$9.00, \$10.00 net	

**Dividers—See Compasses.****Dog Collars—See Collars, Dog.****Door Checks—**

—See Checks, Door.

**Door Springs—**

—See Springs, Door.

**Drawers.**

Money, # doz	\$18 to \$20
Waddell's Improved, # doz	\$15.00

**Drawing Knives—**

—See Knives, Drawing.

**Drills and Drill Stocks—**

Blacksmiths	each \$1.75
Blacksmiths' Self-Feeding, each \$7.50, 20%	
Preast, P. S. & W.	40%10%
Breast, Wilson's	30%5%
Breast, Millers Falls	each \$3.00, 25%
Breast, Bartholomew's	each \$2.50, 40%
Ratchet, Merrill's	20%20%5%
Ratchet, Rogers' list	25%
Ratchet, Parker's	20%20%5%
Ratchet, Whitney's	20%10%
Ratchet, Weston's	20%25%
Ratchet, Moore's Triple Action	25%20%
Ratchet, Curtis & Curtis	30%
Whitneys Hand Drill, Plain, \$11.00	
Adjustable, \$12.00	20%
Automatic Boring Tools	\$1.75 to \$1.85
Chicopee Automatic Drill	10%
Goodell Automatic Drills	40%5%

**Twist Drills—**

Cleveland	50%10%10%
Diamond, W. & B.	50%10%10%
Graham's Pat. Groove Shank	50%10%10%
Morse	50%10%10%
New Process	50%10%10%
Standard	50%10%10%
Syracuse (Metal list)	60%10%

**Drill Bits or Bit Stock**

Drills—See Augers and Bits.

**Drill Chucks—See Chucks.****Dripping Pans—**

—See Pans, Dripping.

**Drivers, Screw—**

Douglas Mfg. Co.	20%20%10%
Disston's	50%
Buck Bros	30%
Stanley R. & L. Co.'s	
No. 64, Varished Handles	65%10%
No. 86	70%10%
Sargent & Co's	
No. 1, Forged Blade	60%10%10%
Nos. 20, 40 and 60	60%10%10%
P. S. & W.	
Knapp & Cowies	
No. 1	60%20%70%
No. 2	60%10%10%70%5%
No. 3	60%5%10%10%
Nos. 4 and 00, Acme and Ideal	50%10%5%

**Stearns'—**

Stearns' Frames and Corners	25%25%10%
Clark's Pat.	30%35%
Ellrich's Socket and Ratchet	25%25%10%
Alford's Spiral, new list	25%
Kolb's Common Sense	\$ doz, \$6.00, 25%10%

**Syracuse Screw Driver Bits.**

Screw Driver Bits	30%30%5%
Screw Driver Bits, Parr's	\$ gross, \$6.25
Frays' Hol, H die Sets	No. 3, \$12.00, 45%
Cincinnati	25%10%
Brace Screw Drivers	25%10%
Buck Bros' Screw Driver Bits	25%10%
Goodell's Automatic	50%
Mayhew's Black Handle	50%
Mayhew's Monarch	45%10%
C. T. Williamson Wire Novelty Co.	50%

**Egg Beaters—See Beaters, Egg****Egg Poachers—**

—See Poachers, Egg.

**Electric Bell Sets—**

—See Bells, Electric.

**Emery—No. 4 to No. 54 to Flour CF.**

Kegs, # 40 gr.	150 gr.	1 FT.
1/2 kegs, # 40 gr.	5 1/2	2 1/2
1/4 kegs, # 40 gr.	5 1/2	2 1/2
1/8 kegs, # 40 gr.	5 1/2	3 1/2
10 lb cans, 10		
In case	6 1/2	5 1/2
10 lb cans, less than 10	10	7 1/2

**Enameled and Tinned Ware—See Ware, Hollow****Escutcheon Pins—**

—See Pins, Escutcheon.

**Escutcheons—**

Door Lock	Same dis. as Door Locks
Brass Thread	60%60%10%
Wood	25%

**Expanded Metal—**

List No. 5.	
Lathing	10%
Fencing, Painted Sheets	20%
Netting, Painted Sheets	20%
Door Mats, Galvanized	25%
Window Guards, Paneled	15%
Tree Guards, Paneled	15%

**Extractors, Lemon Juice—**

—See Squeezers, Lemon.

**Fasteners, Blind—**

Mackrell's, # doz, \$1.00	20%20%10%
Van Sandt Screw Pat \$15 # gr.	60%10%
Van Sandt's Old Pat, \$15 # gr.	55%10%
Austin & Eddy No. 2008	\$ gr, \$9.00
Security Gravity	\$ gr, \$9.00
Zimmerman's	60%10%

**Faucets—**

Fenn's	40%
Fenn's Cork Stops	35%
Star	60%
Frays' Pat. Petroleum	60%
B. & L. B. Co.	
West's Lock, Open and Shut Key	50%
Star, Metal Plug, new list	40%
Lockport, Metal Plug, reduced list	60%
Metallic Key, Leather Lined	60%10%

**Cork Lined—**

Mackrell's, ½ doz., \$1.00.....	20@20&10%
Van Sand's Screw Pat, \$15 ½ gr..	60&10%
Van Sand's Old Pat., \$15 ½ gr.....	55&10%
Austin & Eddy No. 2008.....	½ gr, \$9.00
Security Gravity.....	½ gr, \$9.00
Zimmerman's.....	50&10%

**Halters—**

Covert's Rope, Jute.....	60@10@10@25
Covert's Rope, 7-16-in. Jute.....	70@25
Covert's Rope, 1/4-in. Hemp.....	50@25
Covert's Ad. J. Rope Halters.....	40@25
Covert's Bemp Horse and Cattle Tie.....	50@10@25
Covert's Jute Horse Ties.....	70@25
Covert's Jute Cattle Ties.....	70@10@25
Covert's Ad. J. Web Halters.....	85@25
Covert's Saddlery Works Halters.....	33@25
Covert's Saddlery Works Horse and Cattle Ties.....	88@25
Covert's Saddlery Works Handy Web Halters.....	33@25

**Hammers—**

<b>Handled Hammers—</b>	
Maydole's, list Dec. 1, '85.....	25@10@35
Buffalo Hammer Co.....	50@10
Humason & Beckley.....	50@10
Atha Tool Co.....	50@10
Verree.....	40@10
C. Hammond & Son.....	40@10
Fayette R. Plumb.....	40@10
Artisan's Choice, A. E. Nail.....	40@10
Regular Y. & F. A. E. Nail.....	50
Horseshoe Turning Hammer.....	50
Other Hammers.....	50@10
Cheney's Claw.....	40@10
Cheney's Machinist's & Riveting.....	50@5
Magnetic Nail, Nos. 1, 2, 3, 1.25, 1.50 & 1.75.....	50@10
Nelson Tool Works.....	25@10
Warner & Nobles new list.....	25@10
Peck, Stow & Wilcox.....	35@40
Sargent's.....	40@40

**Heavy Hammers and Sledges—**

3 lb and under.....	75@10@75@10
3 to 5 lb.....	25
Over 5 lb.....	25
Wilkinson's Smiths.....	10@11@25

**Handcuffs and Leg Irons—**

See Police Goods.

**Handles—**

<b>Cross-Cut Saw Handles—</b>	
Atkins' new list.....	40
Champion.....	40
Ely's Perfection.....	40
Sensible.....	40

**Iron, Wrought or Cast—**

Door or Thumb.....	
Nos.....	1 2 3 4
Per doz.....	0.90 1.00 1.08 1.35 1.50
Roggin's Latches.....	40@10@10
Bronze Iron Drop Latches.....	40@10
Jap'd Store Door Handles—Nuts, 1/2" Plate, 1 1/4, no plate, 1/8, 3/8.....	10@10
Barn Door.....	10@10
Chest and Lifting.....	70@10@10

**Wood—**

Saw and Plane.....	40@10@50
Hammer, Hatchet, Axe, &c.....	40@40@50
Brad Axl.....	40@20
Hickory Firmer Chisel, ass'd.....	40@50
Hickory Firmer Chisel, large.....	40@50
Apple Firmer Chisel, ass'd.....	40@50
Apple Firmer Chisel, large.....	40@50
Socket Firmer Chisel, ass'd.....	40@50
Socket Framing Chisel, ass'd.....	40@50
J. B. Smith & Co's Pat. File.....	50
File, assorted.....	40@25
Auger, assorted.....	40@25
Auger, large.....	40@25
Pat. Auger, Ives.....	30@10
Pat. Auger, De Glass.....	30@10
Pat. Auger, Swan.....	30@10
Hoe, Rake, Shovel, &c.....	60@60@50

**Hangers—**

Barn Door, old patterns.....	70@70@50
Barn Door, New England.....	70@70@50
Samson Steel Anti-Friction.....	55
Orleans Steel.....	55
Hamilton Wrought Steel Track.....	55
Champion.....	60@10
Climax Anti-Friction.....	55
Zenith for Wood Track.....	55
Sterling.....	60@10@60
Victor, No. 1, \$15.00; No. 2, \$13.50.....	50@25
Kidder's.....	60@50@10
Boss.....	60@10@60@10@50
Best Anti-Friction.....	60@10@60@10@50
Duplex (Wood Track).....	60@10@50
Terry's Modern.....	60@10@50@10@50
Terry's Ideal.....	60@10@50@10@50
Terry's Solid.....	60@10@60
Terry's Shield.....	60@10@60
Terry's Wrought Single Strap.....	60@10
Cronk's Patent, Steel Covered.....	60@10
Carrier Steel Anti-Friction.....	60@10
Richards.....	80@30@10
Lane's New Standard.....	50@5@50@10
Lane's Standard.....	50@5@50@10
Lane's Parlor.....	40
Warner's Pat.....	20@10@10
Stearns Anti-Friction.....	20@10@10
Stearns' Challenge.....	25@10@10
Cincinnati Nos. 1, \$2.25; 3, \$2.50; 4, \$2.50.....	20@10
Paragon Nos. 5, 6, 7 and 8.....	20@10
Creighton.....	60@60@10
Nickel, Steel, Nos. 0, \$25; 1, \$20; 2, \$15.....	40@10@50
Chicago Anti-Friction.....	30@10
Star.....	40@10@40@10@50
Barry.....	50
Interstate.....	50@10@60
Pendulum, Payson's.....	40@40@10
Moody.....	45
Economy, \$6.00.....	60@10
Perfection.....	50@10@60@10@50
Lundy, Steel Parlor.....	40
Matchless.....	60@10
Magie.....	45@10
Wild West.....	45@10
Moore's Elevator.....	33@45
Moore's Baggage Car Door.....	33@45
Moore's Railroad.....	55

**Harness Snaps—See Snaps.****Hatchets—**

American Axe and Tool Co.....	
Blood's.....	
Hunt's.....	40 & 10
Hurd's.....	40 & 10
Mann's.....	40 & 10
Peck's.....	40 & 10
Underhill's.....	40 & 10
Fayette R. Plumb.....	40 & 10
C. Hammond & Son.....	40 & 10
Kelly's.....	50 @ 50
Buffalo Hammer Co.....	50 @ 50
Sargent's & Co.....	50 @ 50
P. S. & W. Co.....	50 @ 50
Schulte, Lohoff & Co.....	50 @ 50
Ten Eyck Edge Tool Co.....	50 @ 50
Collins.....	10

**Hay and Straw Knives—**

See Knives.

**Hinges—****Blind Hinges—**

Parker.....	75@75@10
Clark's Nos. 1, 3, 5, 10 and 50.....	50
Clark's Mortise Gravity.....	80@5@80@10
Sargent's Nos. 1, 3, 5, 11, 12, 13, 75@10	75@10
Reading's Gravity.....	75@10@75@10@5
Shepard's.....	75@10
Noiseless.....	75@10
Niagara.....	80
Buffalo.....	80
Clark's Genuine Pattern.....	80
O. S., Lull & Porter.....	75@10
Aome, Lull & Porter.....	75
Queen City Reversible.....	70@10@5@75
Clark's, Lull & Porter, Nos. 0, 1, 1 1/2, 2, 3.....	75@10@2
North's Automatic Blind Hinges, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....	10

**Gate Hinges—**

Western.....	40
N. Y. State.....	40
N. E. Reversible.....	40
Clark's, Nos. 1, 2, 3.....	40
N. Y. State.....	40
Automatic.....	40
Shepard's.....	40

**Spring Hinges—**

Geor's Spring and Blank Butts.....	40
Union Spring Hinge Co's list.....	40
March, 1886.....	20
Barker's Double Acting.....	25
Union Mfg. Co.....	25
Bommer's Japanned.....	25
Bommer's All other kinds.....	25
Buckman's.....	15
Chicago.....	15
Barclay's Patent Checking.....	15
Acme.....	30
U. S.....	25@10
Empire and Crown.....	20
Hero and Monarch.....	20
American, Gem and Star.....	20
Oxford.....	20
Royal.....	20
Reliable.....	20
Champion.....	20
No. 10 Matchless.....	20
No. 25 Unbreakable.....	20
J. G. C. Covered, \$1.00; \$2.00.....	20
Sanson.....	20
Wiles, No. 1, 1/2, 3, 4, 5, 6, 7, 8, 9, 10.....	20
Devore, No. 1.....	20
Rex.....	20
Freeport.....	20
New Idea Nos. 1 and 10.....	20
New Idea Dbl. Acting.....	20
Ideal No. 3.....	20
Stearns' Noiseless Floor Hinge, 1/2 set, \$5.00.....	20

**Wrought Iron Hinges—**

List February 14, 1891.....	
Strap and T.....	50@10@50@10@50
Corrugated Strap and T.....	50@10@50
Screw Hook and.....	6 to 12 in. 4 1/2
Strap.....	14 to 20 in. 4 1/2
Screw Hook and Eye.....	22 to 36 in. 4 1/2
Strap.....	22 to 36 in. 4 1/2
Roller Blind Hinges, Nos. 32 and 34.....	60@10
Roller Blind Hinges, Nos. 252 and 254.....	60@10
Roller Plate.....	55@10
Roller Raised.....	70@10
Plate Hinges 8, 10 and 12 in. 4 1/2.....	70@10
"Providence" over 12 in. 4 1/2.....	70@10

**Hoes—**

D. & H. Scovill.....	30
Lane's Crescent Planters' Pattern.....	45@55
Lane's Razor Blade, Scovill Pattern.....	30
Maynard, S. & O. Pat.....	45@55
Sandusky Tool Co., S. & O. Pat.....	60@5
Am. Axe and Tool Co., S. & O. Pat.....	60@10
Chattanooga Tool Co., S. & O. Pat.....	60@10
Grub.....	6@10
Garden, Mortar, &c.....	70@70@50@25
Planter's, Cotton, &c.....	70@70@50@25
Warren Hoe.....	60@60@50
Magie.....	40

**Hog Rings and Ringers—**

See Rings and Ringers.

**Holisting Apparatus—**

See Machines, Hoisting.

**Hollow-Ware—**

See Ware, Hollow.

**Holders—**

Bag—

Sprengle's Pat.....	40
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**Bit—**

Extension.....	40
Barber's.....	40
Ives.....	40
Diagonal.....	40
Angular.....	40

**File and Tool—**

Bals Pat.....	40
Nicholson File Holders.....	20

**Sash—**

Motley's Adj. Sash, Medium Size.....	40
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**Hooks—****Cast Iron—**

Bird Cage, Sargent's List.....	60@10@10
Bird Cage, Reading.....	60@10@10
Clothes Line, Sargent's List.....	60@10@10
Clothes Line, Moore's.....	70

**Clothes Line, Reading list**

Celling, Sargent's list.....	60@10@60@10@10
Harness, Reading list.....	55@10@10
Coat and Hat, Sargent's list.....	55@10@60@10
Coat and Hat, Reading.....	50@10@50@10@10
Coat and Hat, Moore's.....	70

**Wrought Iron—**

Cotton.....	40
Cotton Pat. (N. Y. Mallet and Handle).....	30
Tassel and Picture, T. & S. Mfg. Co.....	60
Wrought Staples Hooks, &c.....	60

**Wire—**

Wire Coat and Hat, Gem, list April, 1886.....	40@60@10
Wire Coat and Hat, Miles, list April, 1886.....	50@50@10
Indestructible Coat and Hat.....	45@45@5
Wire Coat and Hat, Standard, 60@10@10	60@10@60
Handy Hat and Coat.....	60@10@60
Steady Ceiling Hooks.....	60@10@60
Atlas, Coat and Hat.....	80@15@60@25
Williamson's Bird Cage Hooks, list April, 1892.....	40

**Miscellaneous—**

Grass, No. 2, \$2.00; No. 3, \$2.10; No. 4, \$2.25	
Nolin's Grass.....	40
Whiffletree, Patent.....	55
Hooks and Eyes—Malleable Iron.....	70@70@10
Hooks and Eyes—Brass.....	60@10@10
Fish Hooks, American.....	60
Bench Hooks—See Bench Stops.	

**Horse Nails—See Nails, Horse****Horse Shoes—**

See Shoes, Horse.

**Hose, Rubber—**

Competition, Fair quality.....	75@75@10
Competition, Low Grade.....	30@80@10
Standard.....	70@10@70@10@5
Extra.....	60@10@60@10@10
N. Y. B. & P. Co., Para.....	25@55
N. Y. B. & P. Co., Extra.....	40@55@50
N. Y. B. & P. Co., Dundee.....	60@60@5
Cotton Garden, 1/4 in. coupled.....	7
Fair Quality.....	7
Good Quality.....	8

**Huskers—**

Blair's Adjustable.....	40
Blair's Adjustable Clipper.....	7
Hubbard's Solid Steel.....	4

**Indurated Fiber Ware—**

See Ware, Indurated Fiber.

**Irons.**

From 4 to 10, at factory.....	100
Self-Heating.....	23@30@24
Self-Heating Tailors'.....	40
Mrs. Potts' Sad Irons, per set.....	60 65
Small lots.....	50 55 1.05 95
Crown Improved.....	60@10
Iron Irons, new list.....	50@10@50@10@10
Salamanca Irons.....	25
B. B. Sad Irons.....	30@30
Chinese Laundry (N.E. Butt Co.).....	15
New England.....	6, 20@20@5
Mahony's Troy Pol. Irons.....	25
Sensible, list Jan. 91.....	60@10@5
Sensible Tailor's Irons.....	33@4
National Self-Heating.....	30

**Soldering—**

Soldering Coppers.....	19@21
Covert's Adjustable, list Jan. 1, 1886.....	55@22
Tinker's Dread.....	40

**Pinking—**

Pinking Irons, per doz., 55@60.

**Jack Screws—See Screws.****Jacks, Wagon—**

Daisy.....	33@4
Victor.....	33@4
Lockport.....	40

**Kettles—**

Brass, Spun, Plain, list Jan. 1, '91, 25@55	
Brass, Spun, Plaid, W.M. list Jan. 1, '91, 20	
Stamped Brass Kettles.....	21
Enamelled and Tea—See Ware, Hollow.	

**Keys—**

Lock, Ass'n list Dec. 30, 1886.....	65@10@70
Legs, Cabinet, &c.....	33@4
Hotchkiss' Brass Blanks.....	40
Hotchkiss' Copper and Tinned.....	40
Hotchkiss' Pad. and Cab.....	35
Wollensak Tinned.....	50@10

**Knife Sharpeners—**

See Sharpeners, Knife.

**Knives—**

Butcher, Shoe, &c.....	
Wilson's Butcher Knives, list Dec 8, 1889.....	25
Ames' Butcher Knives.....	25
Foster Bros' Butcher, &c.....	40
Jordan's A.A. Butchers', list.....	40
Nichols' Butcher Knives.....	40@10
W. W. Wilson, Butcher, 6 in., \$2.00; 7 in., \$2.70; 8 in., \$3.50, &c.....	25@30
Ames' Bread Knives, per doz.....	15@20
Moran's Shoe and Bread.....	20@20@10
Hay and Straw—See Hay Knives.	
Table and Pocket—See Cutlery.	

**Corn—**

Bradley's.....	10
Wadsworth's.....	25@25@10

**Drawing—**

Wetherby.....	75@75@10@25
P. S. & W.....	75@75@10@25
Mil.....	75@75@10@25
New Haven.....	80@10@90@10@5
Merrill.....	80@10@90@10@5
Douglas.....	75@75@5
Watrous.....	15@10@25



**Pullers Nail—**

Soranton. .... \$ doz., \$18.00, 38¢  
 Giant, No. 1. .... \$ doz., \$18.00, 10¢  
 Giant, No. 2. .... \$ doz., \$15.00, 10¢  
 Pelican. .... \$ doz., \$9.00, 25¢  
 Eclipse. .... \$ doz., \$24.00, 40¢  
 Economy. .... \$ doz., \$6.00

**Pulleys—**

Hot House, Awning, &c. .... 60¢@70¢  
 Japanned Screw. .... 60¢@10¢  
 Brass Screw. .... 70¢  
 Japanned Side. .... 60¢@10¢  
 Moore's Side, Anti-Friction. .... 50¢  
 Moore's Ceiling or End, Anti-Friction. .... 40¢  
 Moore's Dumb Waiter, Anti-Friction. .... 60¢  
 Moore's Electric Light. .... 39¢  
 Japanned Clothes Line. .... 60¢@10¢  
 Hay Fork, Solid Eye. .... \$4.00; Swivel, \$4.50  
 Hay Fork, 50¢@10¢@50¢@10¢  
 Hay Fork, "Anti-Friction," 5 in. solid. \$5.70  
 Hay Fork, "P" Common and Patent. 50¢  
 Bushed. .... 20¢  
 Hay Fork, Tarbox Pat. Iron. .... 20¢  
 Hay Fork, Reeds Self-Lubricating. .... 80¢  
 Hay Fork, Moore's Anti-Friction 5 in. Wheel. \$ doz., \$12.00. .... 40¢  
 Shade Rack. .... 45¢  
 Tackle Blocks—See Blocks.  
 Shepard's Niagara, No. 25. \$ doz 23¢ net  
 Sash (Auger Mortise). .... 60¢  
 Common Sense. .... 60¢  
 Empire. .... 60¢  
 Ideal, Nos. 2, 4, 10 & 16. } 30% less 1¢  
 Acme. } doz net.  
 Star. }  
 On bbl. lots extra 5¢.  
 Ideal, Nos. 25 and 55. \$ doz. 22¢ net.

**Pumps—**

Cistern, Best Makers. .... 60¢@60¢10¢  
 Pitcher Spout, Best Makers. .... 67¢@70¢  
 Pitcher Spout, Cheaper G'ds. 75¢@75¢10¢

**Punches—**

Saddler's or Drive, good. \$ doz., 60¢@85¢  
 Bemis & Call Co.'s Cast Steel Drive. 50¢@85¢  
 Bemis & Call Co.'s Springfield Socket. 50¢  
 Spring, good quality. \$ doz., \$2.50@3.00  
 Spring, Leach's Pat. .... 15¢  
 Bemis & Call Co.'s Spring. .... 50¢@85¢  
 Bemis & Call Co.'s Check. .... 55¢  
 Solid Timmers, P., S. & W. Co., \$ doz., \$1.44  
 Timmers' Hollow Punches, P., S. & W. Co. 20¢@25¢  
 Rice Hand Punches. .... 15¢  
 Avery's Revolving. .... 40¢  
 Avery's Sawset and Punch—See Sawsets  
 Niagara Hollow Punches. .... 20¢@25¢  
 Niagara Solid Punches. .... 55¢

**Rail—**

Sliding Door, Wrt Brass. \$ b. 35¢, 40¢  
 Sliding Door, Bronzed Wrt Iron. \$ ft., 7¢  
 Sliding Door, Iron, Painted. \$ ft., 4¢, 40¢  
 Barn Door, Light. In. \$ 3¢  
 Per 100 feet. \$2.00 2.50 3.10, 10¢  
 B.D. for N. E. Hangers—

Small. Med. Large.  
 Per 100 feet. \$3.15 2.70 3.25 Net  
 Terry's Steel Rail. \$ ft., 4¢  
 Victor Track Rail, 7¢ ft. foot. .... 50¢@25¢  
 Carrier, double braced, Steel Rail, 4¢ foot. .... 30¢@40¢  
 Lundy Parlor Door, Planed Edge. \$ ft., 7¢  
 Moore's Steel Rail. .... 25¢@10¢  
 Moody Steel Rail \$ ft., 5¢. .... 45¢

**Rakes—**

Cast Steel, Association G'ds. 70¢@70¢5¢2¢  
 Cast Steel, outside g'ds. 70¢@70¢5¢2¢  
 Malleable. .... 70¢@70¢5¢  
 Gibbs' Lawn Rake. .... \$ doz., \$4.90  
 Gibbs' Canton Lawn Rake. \$ doz., \$3.75  
 Gibbs' Acme Lawn Rake. \$ doz., \$4.75  
 Gibbs' Favorite Lawn Rake. \$ doz., \$3.90  
 Gibbs' Crown Lawn Rake, No. 1. \$ doz., \$4.90; No. 2, \$3.40  
 Oneida Lawn Rake. \$ doz., \$6.00  
 Fort Madison Prize Bow Brace and Peerless. .... 65¢  
 Fort Madison Steel Tooth Lawn Rake. \$5.00. .... 25¢

**Razors—**

J. R. Torrey Razor Co. Net prices  
 Wostenholm and Butcher, \$10 to \$20. 10¢  
 Jordan's AAAA, new list. Net prices  
 Jordan's Old Faithful, new list. Net prices  
 Galvanic. .... \$ doz., \$16.00  
 Electric Cutlery Co. Net prices  
 Campbell Cutlery Co. .... 60¢

**Razor Straps—**

See Straps, Razor.

**Registers—**

Moore's Japanned. .... 75¢  
 Moore's Electroplated. .... 75¢  
 Moore's Bronze Finishes. .... 70¢  
 Moore's Solid Bronze. .... 80¢  
 Moore's Stove Pipe. .... 33¢

**Rings and Ringers—****Bull Rings—**

Union Nut Co. .... 55¢  
 Sargent's. .... 75¢@10¢  
 Hotchkiss' low list. .... 30¢  
 Humason, Beckley & Co.'s. .... 70¢@10¢  
 Peck, Stow & W. Co.'s. 50¢@10¢@50¢@10¢  
 Elrich Edw. Co., White Metal, low list. 50¢@50¢10¢

**Hog—**

Top of the Hill Ringers. \$ doz \$2.00  
 Top of the Hill Ringers. \$ doz \$2.25  
 Hill's Improved Ringers. \$ doz \$1.25  
 Hill's Old Style Ringers. \$ doz \$1.12½  
 Hill's Tongs. \$ doz \$3.00  
 Hill's Rings. \$ doz bxs \$1.00  
 Perfect Rings. \$ doz bxs \$1.50  
 Perfect Rings. \$ doz \$2.15@2.25  
 Blair's Hog Rings. \$ doz 90¢@1.00  
 Champion Ringers. \$ doz \$2.00  
 Champion Ringers, Double. \$ doz \$2.25  
 Brown's Ringers. \$ doz \$2.00  
 Brown's Rings. \$ doz \$1.15@1.25  
 Electric Hog Rings. \$ doz boxes \$1.50  
 Electric Hog Ringers. \$ doz \$2.00  
 Major Rings. \$ doz \$1.25  
 Major Ringers. \$ doz \$2.00

**Rivets and Burrs—**

Norway Iron, list Nov. 17, '87. .... 60¢@10¢  
 Second quality. .... 70¢  
 Copper. .... 60¢@10¢  
 Copper Iron, Betina Brand. .... 50¢@5¢

**Rivet Sets—See Sets.****Roasting and Baking Pans—See Pans, Roasting and Baking.****Rods—**

stair, Brass. .... 25¢@30¢  
 stair, Black Walnut. \$ doz 40¢

**Rollers—**

Barn Door, Sargent's list. .... 60¢@10¢10¢  
 Acme Moore's Anti-Friction. .... 55¢  
 Union Barn Door Roller. .... 70¢  
 Moore's Barn Door Stay. .... 80¢  
 Thompson Mfg. Co.'s Lawn Rollers. .... 30¢

**Rope—**The following prices are f.o.b. New York or factory, and are shaded ¼¢@½¢ on large lots; terms, 1½% for cash.  
 Manila, 7-16 in. diam. and larger. \$ b 8½¢  
 Manila, 7-16 in. diam. and larger. \$ b 9¢  
 Manila, Tarred Rope. \$ b 8¢  
 Manila, Hay Rope, Medium. \$ b 8½¢  
 Sisal. 7-16 inch and larger. \$ b 8½¢  
 Sisal. 7-16 in. diam. and larger. \$ b 7½¢  
 Sisal, Hay Rope. \$ b 7½¢  
 Sisal, Tarred Rope. \$ b 6½¢  
 Sisal, Medium Lath Yarn. \$ b 6½¢  
 New Zealand. 7-16 in. & larger. \$ b 6½¢  
 New Zealand. ¼ and 5-16 inch. \$ b 7½¢  
 New Zealand, Hay Rope. \$ b 6½¢  
 New Zealand, Tarred Rope. \$ b 6½¢  
 Cotton Rope. \$ b 13½¢@16¢  
 Jute Rope. \$ b 6½¢@7½¢

**Wire—**

List February, 1892. All kinds. .... 45¢

**Rules—**

Boxwood. .... 80¢@10¢@80¢@10¢10¢  
 Ivory. .... 50¢@10¢  
 Starrett's Steel Rules and Straight Edges. .... 25¢@10¢

**Sad Irons—See Irons, Sad.****Sand and Emery Paper and Cloth—**

See Paper and Cloth.

**Sash Cord—See Cord, Sash.****Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

**Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.****Saws—**

Note.—Extra 5¢@10¢ often given.

Disston's Circular. .... 45¢@45¢5¢  
 Disston's Cross Cut, list Jan. 1, '93. 40¢@10¢  
 Disston's Hand. .... 25¢  
 Woodrough & McParlin. .... 25¢@10¢  
 Hand, Panel and Rip. .... 45¢@10¢  
 Cross Cuts, list Jan. 1, 1893. .... 45¢@10¢  
 Wheeler, Madden & Clemson Mfg. Co. Hand, Panel and Rip. .... 30¢@10¢  
 Cross Cuts, list Jan. 1, 1893. .... 45¢@10¢  
 Atkins' Circular. .... 50¢@10¢  
 Atkins' Cross Cuts, new list. .... 40¢  
 Atkins' Muley, Mill and Drag. .... 50¢@10¢  
 Atkins' One-Man Saw. .... 40¢  
 Atkins' Wood Saws. .... 40¢  
 Peace Circular and Mill. .... 45¢@45¢5¢  
 Peace Hand Panel and Rip. .... 25¢@25¢5¢  
 Peace Cross Cuts, list Jan. 1, '93. .... 45¢@10¢  
 Richardson's Circular and Mill. 45¢@45¢5¢  
 Richardson's X Cuts, list Jan. 1, '93. 45¢@45¢5¢  
 Richardson's Hand. .... 25¢@25¢5¢  
 C. E. Jennings & Co.'s. .... 25¢

**Hack Saws—**

Griffin's, complete. .... 40¢@10¢50¢  
 Griffin's Hack Saw Blades. .... 40¢@10¢50¢  
 Star Hack Saws and Blades. .... 25¢  
 Eureka and Crescent. .... 25¢

**Scroll—**

Lester, complete, \$10.00. .... 25¢  
 Rogers, complete, \$4.00. .... 25¢  
 Barnes' Builders' and Cab Makers' \$15.25¢  
 Barnes' Scroll Saw Blades. .... 35¢

**Saw Frames—**

See Frames, Saw.

**Saw Sets—See Sets, Saw.****Saw Tools—See Tools, Saw.****Scales—**

Hatch, Counter, No. 171, good quality. \$ doz \$18.00@18.00  
 Hatch, Tea, No. 161. \$ doz \$6.50@7.00  
 Union Platform, Plain. .... \$2.10@2.10  
 Union Platform, Striped. .... \$2.40@2.50  
 Chatillon's Grocers' Trip Scales. .... 50¢  
 Chatillon's Eureka. .... 25¢  
 Chatillon's Favorite. .... 40¢  
 Family Turnbells. .... 30¢@30¢10¢  
 Riehle Bros.' Platform. .... 40¢

**Scale Beams—**

See Beams, Scale.

**Scissors, Fluting. .... 45¢****Scrapers—**

Adjustable Box Scraper (S. R. & L. Co.) \$3.00. .... 30¢@10¢  
 Box, 1 Handle. .... \$2.60  
 Box, 2 Handle. .... \$4.00@4.00  
 Defence Box and Ship. .... 20¢@10¢  
 Foot. .... 50¢@10¢@90¢  
 Ship, Common. .... \$ doz \$3.50  
 Ship, R. I. Tool Co. .... 10¢

**Screen Window and Door****Frames—See Frames****Screw Drivers—**

See Drivers, Screw.

**Screws—****Bench and Hand—**

Bench, Iron. .... 55¢@10¢55¢@10¢10¢  
 Bench, Wood, Beech. .... \$ doz \$2.25  
 Bench, Wood, Hickory. .... 20¢@10¢  
 Hand, Wood. .... 25¢@10¢25¢@10¢5¢  
 Hand, Grand Rapids, list. .... 55¢

**Coach, Lag and Hand-Rail—**

Lag, Blunt Point, list Jan. 1, 1890. .... 80¢@10¢80¢25¢  
 Coach and Lag, Gimlet Point, list Jan. 1, 1890. .... 80¢@10¢80¢20¢  
 Hand Rail, Sargent's. .... 70¢@10¢  
 Hand Rail, H. & B. Mfg. Co. .... 70¢@10¢75¢  
 Hand Rail, Am. Screw. .... 75¢

**Jack Screws—**

Jack Screws, Millers Falls list. 50¢@50¢10¢  
 Jack Screws, P., S. & W. .... 35¢  
 Jack Screws, Sargent. .... 70¢  
 Jack Screws, Stearns. .... 40¢@40¢10¢

**Cork—**

Humason & Beckley Mfg. Co. 40¢@10¢50¢  
 Williamson's. .... 33¢@33¢25¢  
 Williamson's Forged Worm, Applewood Handle, \$ doz., \$5.00; Rosewood, \$5.50. .... 40¢  
 Detroit Cork Screw Co. .... 33¢@40¢

**Machine—**

Flat Head Iron. .... 65¢  
 Round Head Iron. .... 60¢

**Wood—**

List January 1, 1891.  
 Flat Head Iron. .... 70¢  
 Round Head Iron. .... 65¢  
 Flat Head Brass. .... 70¢  
 Round Head Brass. .... 65¢  
 Round Head Bronze. .... 70¢  
 Round Head, Bronze. .... 65¢  
 Rogers' Drive Screws. .... 32¢@40¢

**Scroll Saws—See Saws, Scroll.****Scythes—****Scythe Snaths—**

See Snaths, Scythe.

**Sets—**

Alken's Set, Awls and Tools, No. 20, \$ doz \$10.00. .... 60¢@60¢5¢  
 Pray's Adj. Tool Hdl's, No. 1, \$12; 2, \$18; 3, \$12; 4, \$9. .... 45¢  
 Millers Falls Adj. Tool Hdl's, Nos. 1, \$12; 2, \$18. .... 25¢  
 Henry's Combination Haft. \$ doz \$6.50  
 Stanley's Excelsior. .... \$5.50, \$7.50; No. 2, \$4.00; No. 3, \$5.50. .... 30¢@10¢  
 Common Brad Sets, No. 42, \$10.50; No. 43, \$12.50. .... 70¢@10¢5¢

**Nail—**

Square. .... \$ gr. \$4.00@4.25  
 Round. .... \$ gr. \$3.25  
 Buck Bros. .... 27¢@40¢  
 Cannon's Diamond Point. \$ gr. \$12, 20¢

**Rivet—**

Regular list. .... 70¢

**Saw—**

Stillman's Genuine. \$ doz \$5.00@7.75, 40¢@5¢  
 Stillman's Pattern, Hand, \$ doz \$3.25; Cross Cut, \$8.50. .... 55¢@55¢10¢  
 Common Lever. \$ doz \$2.00, 45¢@50¢  
 Moore's No. 1, \$15.00. .... 40¢@20¢  
 No. 11, \$16.00. .... 40¢@20¢  
 Nos. 3 and 4, Cross Cut, \$23.00. .... 40¢@20¢  
 No. 5, Mill, \$31.00. .... 40¢@20¢  
 No. 10, \$15.50. .... 40¢@20¢  
 Leach's. No. 0, \$8.00; No. 1, \$15. .... 15¢@20¢  
 Nash's. .... 20¢@10¢40¢  
 Hammer, Hotchkiss. .... \$5.50, 10¢  
 Hammer, Bemis & Call Co.'s new Pat. 45¢  
 Bemis & Call Spring Hammer. .... 30¢@5¢  
 Bemis & Call Co.'s Plate. .... 30¢@5¢  
 Bemis & Call Co.'s Cross Cut. .... 30¢@5¢  
 Aiken's Genuine. .... \$13.00, 60¢@80¢10¢  
 Aiken's Imitation. \$ doz \$3.00@3.25, 20¢  
 Bart's Pat. Lever. .... 20¢  
 Disston's Star. .... 40¢@20¢  
 Leopold. .... 40¢@10¢50¢  
 Atkin's Lever. \$ doz No. 1, \$6.00  
 Atkin's Criterion. \$ doz No. 1, \$6.00  
 Crossant (Keller), No. 1, \$15.00; No. 2, \$24.00. .... 40¢@10¢50¢  
 Avery's Saw Set and Punch. .... 50¢  
 Hammer, Bemis & Call Co.'s new Pat. 45¢  
 Kohler's Giant Royal. \$ doz \$12.00  
 Crescent. .... \$ doz \$3.00  
 Lloyd's Acme. \$ doz \$15, 40¢@10¢  
 Taintor Positive. .... \$ doz \$18, 50¢

**Sharpeners, Knife—**

Larkins'.  
 Applewood Handles. \$ uoz \$6.00, 40¢  
 Rosewood or Cocobola. \$ doz \$9.00 40¢

**Shaves, Spoke—**

Iron. .... 45¢  
 Wood. .... 30¢  
 Bailey's (Stanley R. & L. Co.). .... 40¢@10¢  
 Stearns. .... 30¢@10¢  
 Cincinnati. .... 35¢@10¢  
 Goodell's \$ doz \$9.00. .... 25¢

**Shears—**

American (Cast) Iron. 75¢@10¢75¢10¢5¢  
 Barnard's Lamp Trimmers. \$ doz \$3.75  
 Seymour's, list Dec. 1881. .... 60¢@10¢10¢@60¢@10¢10¢5¢  
 Heinisch's, list Dec. 1881. .... 60¢@10¢10¢@60¢@10¢10¢5¢  
 Heinisch's Tailor's Shears. .... 33¢@40¢  
 Cast Steel Trimmers:  
 First quality. .... 80¢@80¢10¢  
 Second quality. .... 80¢@10¢80¢10¢10¢  
 Acme Cast Shears. .... 10¢@10¢  
 Diamond Cast Shears. .... 10¢  
 Clipper. .... 10¢@10¢  
 Victor Cast Shears. .... 75¢@10¢75¢10¢5¢  
 Howe Bros. & Hulbert, Solid Forged. .... 40¢  
 Hatch Cutlery Co., Solid Steel Forged. .... 40¢  
 Davenport Cutlery Co. .... 60¢@60¢10¢  
 Clans brand, Japanned. .... 70¢  
 Clausen brand, Nickelated, same list. .... 60¢  
 Galvanic 3/4 to 9 in. \$ doz \$1.00 10¢ inch Electric Cutlery Co. Net  
 Campbell Cutlery Co., Jap'd. .... 75¢  
 Nickel Plated. .... 65¢

**Timbers Snips—**

Wrt. Handles, Steel Blades. .... 20¢@20¢10¢  
 Niagara Snips and Shears. .... 20¢@10¢  
 Cast Handles, Laid with Steel. .... 40¢

**Pruning Shears and Hoo**

Disston's Combined Pruning Hook and Saw. \$ doz \$18.00, 20¢@10¢  
 Disston's Pruning Hook. \$ doz \$12.00, 20¢@10¢  
 E. S. Lee & Co.'s Pruning Tools. 50¢@10¢70¢  
 Pruning Shears, Henry's Pat. \$ doz \$3.50@4.00  
 Henry's Pruning Shears, \$ doz. \$4.25  
 Wheeler, M. & C. Co., Combination. \$ doz \$12.00  
 Dunlap's Saw and Chisel, \$ doz \$8.50, 30¢  
 J. Mallinson & Co., No. 1, \$6.25; No. 2, \$7.25  
 P., S. & W. Co. .... 60¢  
 Levin Pruner No. 1, \$15.00 \$ doz 40¢@3¢  
 Levin Pruner No. 2, \$21.00 \$ doz 40¢@3¢

**Timbers, &c.—**

Shears and Snips (P. S. & W.). .... 20¢@25¢  
 Snips, J. Mallinson & Co. .... 33¢@40¢

**Sheaves—****Sliding Door**

M. W. Co., list July 1888. .... 50¢@10¢60¢5¢  
 R. & E., list Dec. 18, 1885. .... 55¢@20¢  
 Corbin's list. .... 60¢@10¢2¢  
 Patent Roller. .... 60¢@10¢2¢  
 Patent Roller, Hatfield's. .... 75¢  
 Russell's Anti-Friction, list Dec. 1885. .... 60¢@2¢  
 Moore's Anti-Friction. .... 50¢

**Sliding Shutter—**

R. & E., list Dec. 18, 1885. .... 60¢@10¢2¢  
 Sargent's list. .... 70¢  
 Reading list. .... 60¢@10¢10¢

**Shells—**

First quality 4, 8, 10 and 12 gauge. .... 25¢@10¢2¢  
 First quality Rival, Club and Climax brands, 14, 16 and 20 gauge. .... 15¢@2¢  
 list. .... 20¢@10¢2¢  
 Prize. .... 40¢@2¢  
 Star, Club, Rival and Climax Brands. .... 33¢@10¢2¢  
 Smokeless brand, 12, 10, 16 gauge. .... 33¢@10¢2¢  
 Trap brand, 12 and 10 gauge. .... 33¢@10¢2¢  
 Selbold's Comb. Shot Shells. .... 15¢@2¢  
 Brass Shot Shells, list quality. .... 60¢@2¢  
 Brass Shot Shells, Club, Rival, Climax. .... 65¢@2¢

**Shells, Loaded—**

Standard list, July 19, 1890. .... 40¢@10¢10¢@40¢@10¢5¢  
 7¢ cash, 10 days.

**Ship Tools—**

L. & J. White. .... 20¢@5¢

**Shoes, Horse, Mule, & Horse—**

Burden's, Perkins', Phoenix, Standard, Diamond State, Bryden's Boss and Crescent, at factory. .... \$4.00  
 Bryden's Frog Pressure, at factory. \$5.00

**Mule—**

Add \$1 \$ keg to above prices.

**Ox Wrought—**

Ton lots. .... \$ b 9¢  
 1000 b lots. .... \$ b 10¢  
 500 b lots. .... \$ b 10¢

**Shot—**

Drop, up to B. 25-b bag. .... \$1.40  
 Drop, up to B. 5-b bag. .... 35¢  
 Drop, B and larger, 25-b bag. .... 1.70  
 Drop, B and larger, 5-b bag. .... 1.40  
 Buck and Chilled, 25-b. .... 1.70  
 Buck and Chilled, 5-b bag. .... 40¢  
 Dust Shot, 25-b bag. .... 2.00  
 Dust Shot 5-b bag. .... 45¢

**Shovels and Spades**

Ames' Shovels, Spades, &c., list Nov. 1, 1885. .... 20¢  
 Note.—Jobbers frequently give 5¢@7¢ extra on above.  
 Griffith's Black Iron. .... 50¢@10¢  
 Griffith's C. S. .... 60¢@60¢5¢  
 Griffith's Solid C. S. R. R. Good. .... 30¢  
 St. Louis Shovel Co. .... 20¢@20¢7¢  
 Hussey, Blans & Co. .... 15¢@25¢  
 Hubbard & Co. .... 20¢@20¢7¢  
 Lehigh Mfg. Co. .... 50¢@10¢  
 H. M. Myers Co. .... 80¢, 30¢  
 Payne Petebone & Son. .... 80¢, 50¢  
 Remington's (Levman's) Paw. 40¢@10¢

**Snaps, Harness, &c.**

Anchor (T. & S. Mfg. Co.)	55
Fitch's Bristol	50&10
Hotchkiss	10
Andrews	50
Sargent's Patent Guarded	70&10
Sargent, new list	40&10
Covert	50&10&5&2
Covert, New Patent	50&10&5&2
Covert, New R. E.	60&10&5&2
Covered Spring	60&10&10
Covert's Saddlery Works' Triumph	53&4
John Prota Snaps	76&75&8
Kelley & Woolworth's Steel Harness	50&10&60

**Snaths**

Sythe	50&2&50&5&2
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**Soldering Irons**

See Irons, Soldering.

**Spittoons, Cuspidors, &c.**

Standard Fiberware	
Cuspidors, 3/4-inch, No. 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	

**Spoke Shaves**

See Shaves, Spoke

**Spoke Trimmers**

See Trimmers, Spoke.

**Spoons and Forks****Tinned Iron**

Basting, Cen. Stamp. Co.'s list	70&10
Solid (able and Tea, Cen. Stamp. Co.)	70&10
list	70&10
Buffalo, S. S. & Co.	53&4&5

**Silver Plated**

4 months or 6 cash 30 days	
Meriden Brit. Co., Rogers	40&15
Rogers & Hamilton	40&15
C. Rogers & Bros	40&15
Rogers & Bros	40&15
Reed & Barton	40&40&5
Wm. Rogers Mfg. Co.	40, 15&5
Simpson, Hall, Miller & Co.	50&5
Holmes & Edwards Silver Co.	40, 15&5
L. Boardman & Son	50&12&4

**Miscellaneous**

Holmes & Edwards Silver Co.	
No. 4 Mexican Silver	50&10&5
No. 30 Silver Metal	50&10&5
No. 24 German Silver	50&10&5
No. 50 Nickel Silver	50&5
No. 4 Nickel Silver	50&10&5
Wm. Rogers Mfg. Co.	
Rogers' Silver Metal	50&10&5
18% Rogers' German Silver	50&5
22% Rogers' Nickel Silver	50&5
Rogers & Hamilton	
Steel Goods	40&10
Cimeter, Flatware	40&15&5
Cimeter, Steel Goods	40&10
Crown Hamilton, Flatware and Cutlery	30
German Silver	50&10&5
Nickel Silver	50&5&5&10&5 cash
Britannia	50&10&5
Boardman's Nickel Silver, list July 1, 1881	60&7&5&5
Boardman's Britannia Spoons, case lots	60&5 cash

**Springs**

Torrey's Rod, 9 in.	70&12
Warner's No. 1, 70&15, No. 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	

**Marriage, Wagon, &c.**

Elliptic, Concord, Platform and Half	
Roll	60&10&10&10&10 or net price
Chas. B. Bolster Springs	25

**Squares**

Steel and Iron	80&10&10&80&25
Nickel Plated	
Try Square and T Bevels	60&10&10
Diston's Try Square and T Bevels	50
Winterbottom's Try and Miter	30&10
Starrett's Micrometer Caliper Squares	25
Avery's Flush Bevel Squares	40
Avery's Bevel Protractor	50

**Squeezers**

Blair's	70&20
Blair's "Climax"	70&125
Porcelain Lined, No. 1	70&20

**Lemon**

Wood, No. 2	70&30, 75
Wood, No. 1	70&10, 75
Dunlap's Improved	70&30, 20
Sammis	No. 1, \$5.00; No. 2, \$9.12
\$18 per doz	25&10
Jennings' Star	70&20
The Boss	70&20
Dean's No. 1	70&20, 2, \$3.35; 3, \$1.90; Queen, \$2.50
Little Giant	60&50&5
King	60&50&5
Hotchkiss Straight Flash	70&120
Silver & Co. Glass	gro. \$9.00

**Standard Fiber Ware**

See Ware, Standard Fiber.

**Staples**

Barbed Blind, 1/2 in. and larger	70&70
Barbed Blind, 1/4 in.	80&30
Fence Staples, Galvanized	Same price
Fence Staples, Plain	See Tr. Rep
Grand Crossing Tack Co.'s list	75&10
steelyards	40&10&50
Stocks and Dies	
Blacksmith's	
Waterford Goods	85
Butterfield's Goods	85
Lightening Screw Plate	25&30
Reece's New Screw Plates	25&30
Reversible Ratchet	80
Gardner	25
Green River	25&30

**Steps, Bench**

Morrill's, 70 doz, No. 1, \$10.00; No. 2, \$11.00	
Hotchkiss	70 doz, 5, 10, 10&10&10
Weston's No. 1, \$10.00; No. 2, \$9.00; 25, 10&10&5	

**McGill's, 70 doz \$3.**

Cincinnati	25&10
Torrey's Nos. 1 and 2, 70 doz, \$5; No. 3, \$3.60	30
Millers Falls	25
Stearns	20&10

**Stone**

Stones, Grind—See Grindstones.

**Scythe Stones**

Pike Mfg. Co., list April, 1882. 33&amp;4

Cleveland Stone Co., list Nov. 1882. 33&amp;4

**Oil Stones, &c.**

Pike Mfg. Co.	
Hindostan No. 1, 70 D.	80
Sand Stone	40 @ 40&10
Turkey Oil Stone, 4 to 8 in.	10
Turkey Slips	\$2.00
Lilly White Washita	80&4
Rosy Red Washita	80&4
Washita Stone, Extra	80&4
Washita Stone, No. 1	40
Washita Stone, No. 2	30
Lilly White Slips	90&4
Rosy Red Slips	90&4
Washita Slips, Extra	80&4
Washita Slips, No. 1	80
Arkansas Stone, No. 1, 3 to 5 in.	\$2.30
Arkansas Stone, No. 1 1/2 to 3 in.	\$3.50
Lake Superior	70 D 13&4
Lake Superior Slips	70 D 20

**Stove Polish**

See Polish, Stove.

**Stretchers Carpet**

Cast Steel, Polished	70 doz \$2.2
Cast Iron, Steel Points	70 doz \$5.80&4
Socket	70 doz \$1.75
Bullard's	25&25&10

**Strops, Razor**

Genuine Emerson	60&60&5
Imitation	70&20, 20&10&5
Torrey's	Not prices
Badger Belt and Com	70 doz \$2.00
Lamont Combination	70 doz \$4.00
Jordan's Pat. Padded, list Nov. 1, '89, 50%	
Electric Cutlery Co.	Net prices
Campbell Cutlery Co.	Net prices

**Stuffer, Sausage**

Miles' Challenge, 70 doz	50&50&5
Perry, 70 doz, No. 1, \$15.00; No. 0, \$21.00	50&50&5
Draw Cut No. 4, each \$30.00	80&10
Enterprise Mfg. Co., list Jan 17, '88, 25%	
Silver's	40&10

**Sweepers, Carpet and Lawn**

Bissell No. 5	70 doz \$17.00
Bissell No. 8	70 doz \$20.00
Bissell, Grand	70 doz \$36.00
Standard	70 doz \$24.00
Domestic	70 doz \$21.00
Domestic, No. 2	70 doz \$22.00
Grand Rapids	70 doz \$24.00
Crown Jewel, No. 1, \$18.00; No. 2, \$19.00; No. 3, \$20.00	
Maglo	70 doz \$15.00
Improved Parlor Queen	70 doz \$27.00
Nickel	70 doz \$27.00
Jannaped	70 doz \$24.00
Excelsior	70 doz \$22.00
Garland	70 doz \$18.00
Parlor Queen	70 doz \$24.00
Housewife's Delight	70 doz \$15.00
Ladies' Friend	70 doz \$18.00
Ladies' Friend No. 2	70 doz \$18.00
Advance	70 doz \$18.00
Our Leader	70 doz \$19.00
Triumph	70 doz \$20.00
Supreme	70 doz \$22.00
Easy, Jap'd, 70 doz \$22.00; Nickel, \$24.00	
Acme	70 doz \$24.00
Imperial	70 doz \$26.00
Grand Republic	70 doz \$26.00
Jap'd, 70 doz \$30.00; Nickel, \$33.00	
Banner	
Jap'd, 70 doz \$22.00; Nickel, \$24.00	
The Star	70 doz \$21.00
Reliable	70 doz \$22.00
Rapid, Jap'd, 70 doz \$22.00; Nickel, \$24.00	
Our Own	70 doz \$27.00
Model	70 doz \$27.00
Goshen Sweeper Company, Grand Rapids, Mich., make the following	
5 dozen in 6 months	70 doz \$1.00
10 dozen in 6 months	70 doz \$2.00
Except on L.F., when 10 dozen price is \$13.50, and 25 dozen \$13.00.	

**Lawn**

Thompson Mfg. Co. 30

**Swings**

Davies Lawn 25

**Tacks, Brads &c.**

List October 19, 1889. Old established straight weights. Short weight goods are sold at lower prices.

Carpet Tacks	
American, Blued	60&4
American, Tin'd and Cop'd	70
Steel, Bright and Blued	60&3
Steel, Tin'd and Cop'd	70
Swedes Iron, Blued	72&4
Swedes Iron, Tin'd	76
American Iron Tacks, Domestic	80&4
Swedes Iron Tacks	
S. S., Blued	60&4
S. S., Tin'd	70
Lanc., Blued	55
Lanc., Tin'd	60
G. and L. Tacks	
S. S., Blued	62&4
S. S., Tin'd	60&4
Lanc., Blued	55
Lanc., Tin'd	60
Basket and Trimmers Tacks	
Lanc.	52&4
S. S.	50
Hungarian Nails	80
Common and Patent Brads	55
Leathered Tacks	10
Brush Tacks, S. S.	80
Looking Glass Tacks, S. S.	35
Picture Frame Points, S. S.	35
Finishing Nails	60
Trunk and Clout Nails	
Black	65
Tin'd or Coppered	67&4
Basket Nails	60
Chair Nails	52&4
Old Box Nails	50
Tin Capped Nails	50

**Miscellaneous**

Double Point	90&10&90&10&10
Wire Carpet Nails	50&10
Claw Handle Carpet	70 gross \$4.00
Bonnie Blue	70 doz \$1.50

**Bill Nye Brad Box**

Parisian Gilt Nails, cartoon	4 00
Home Tacks, No. 50, 70 case (12 cartons), \$35.00; No. 100, 70 case (12 cartons), \$72.00	50
Home Nails, No. 200, 70 case (12 cartons), \$30.00; No. 400, 70 case (12 cartons), \$30.00	50
Upholsterers' Nails	50&10

**Wire Brads and Nails**

Steel-Wire Brads, R. &amp; E. Mfg. Co.'s list 50&amp;10

**See also Nails, Wire.****Tanks, Oil**

Emerald, S. S. &amp; Co.: 80-gal. \$3.75; 60-gal. \$11 each. 50&amp;10&amp;5

**Tapes, Measuring**

American 40&amp;40&amp;10

Spring 40

Chesterman's, Regular list. 25&amp;30

**Thermometers**

Tin Case 80&amp;80&amp;10

**Thimble Skeins—See Skeins.****Ties, Bale—Steel.**

Standard Wire, list. 50&amp;10&amp;5

**Tinners' Shears, &c.**

See Shears, Tinners' &amp;c.

**Tinware**

Stamped, Jannaped and Piced, list Jan 20, 1887. 70&amp;10&amp;70&amp;25

**Tire Benders, Upsetters, &c.**

See Benders and Upsetters Tire.

**Tobacco Cutters**

See Cutters, Tobacco.

**Tools****Coopers'**

Bradley's	20
Bradley's	20&20&5
L. & J. White	20&5
Albertson Mfg. Co.	25
Beatty's	30
Sandusky Tool Co.	30&30&5
Shaves Cincinnati Tool Co.	20

**Lumber**

Ring Peavies, "Blue Line"	70 doz \$20.00
Ring Peavies, Common	70 doz \$18.00
Steel Socket Peavies	70 doz \$21.00
Mail Iron Socket Peavies	70 doz \$13.00
Cant Hooks, Common Finish	70 doz \$14.00
Cant Hooks, Mail Socket Clasp, "Blue Line" Finish	70 doz \$16.00
Cant Hooks, Mail Socket Clasp, Common Finish	70 doz \$14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish	70 doz \$14.00
Cant Hooks, Clip Clasp, Common Finish	70 doz \$12.00
Hand Spikes	70 doz 6 ft., \$15.00; 8 ft., \$16.00; 10 ft., \$17.50; 12 ft., \$18.50; 14 ft., \$19.50; 16 ft., \$20.50; 18 ft., \$21.50; 20 ft., \$22.50
Pike Poles, Pike and Hook	70 doz, 12 ft., \$11.50; 14 ft., \$12.50; 16 ft., \$13.50; 18 ft., \$14.50; 20 ft., \$15.50
Pike Poles, Pike only	70 doz, 12 ft., \$10.00; 14 ft., \$11.00; 16 ft., \$12.00; 18 ft., \$13.00; 20 ft., \$14.00
Pike Poles, not ironed	70 doz, 12 ft., \$9.50; 14 ft., \$10.50; 16 ft., \$11.50; 18 ft., \$12.50; 20 ft., \$13.50
Setting Poles	70 doz, 12 ft., \$14.00; 14 ft., \$15.00; 16 ft., \$16.00
Swamp Hooks	70 doz \$18.00

**Saw**

Atkins', new list. 40

**Transom Lifters**

See Lifters, Transom.

**Traps****Game**

Newhouse	40&40&5
Oneida Pattern	75&75&10
Game, Blake's Patent	40&10&5

**Mouse and Rat**

Mouse Wood, Choker	70 doz holes, 90&10
Mouse, Round Wire	70 doz \$1.50 10
Mouse, Cage Wire	70 doz \$2.50 10
Mouse, Catch-em-alive	70 doz \$2.50 15
Mouse, Bonanza	70 doz 0.90&1.00
Rat, Decoy	70 doz \$1.00 10
Ideal	70 doz \$1.00 10
Cyclone	70 doz \$1.00 10
Hotchkiss Metallic Mouse, 5-hole traps	70 doz, 75¢; in full cases, 70 doz 60¢
Hotchkiss Imp. Rat Killer	70 doz \$1.50
Hotchkiss New Rat Killer	70 doz \$1.50
Schiller's Rat Killer	70 doz \$1.50
Dandy	70 doz, \$1.75
Waddell's Gp Bang	70 doz, \$1.50

**Fly**

**Fly—**

Harper, Champion or Paragon. ....	
	70 doz. \$1.75, 70 gro. \$16.50
Belleen, Globe or Acme	

## Whips

American Whip Co.: Length.	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8 ft.
X. L. Whalebone Driving.....	\$13.00	20.00	22.00	24.00	27.00	30.00	33.00	36.00
Eureka, Two-thirds Whalebone.....	15.00	18.50	18.00	20.00				
Bull Bone, Half-length Whalebone.....			11.00	12.00	13.00	15.00		
American Standard.....	8.00	8.50	9.50	10.50	12.00	13.50	15.00	16.50
True Grip, Raw Hide Center.....	6.00	6.00	6.50	7.00	7.50	8.00		
New Name, Stocked Java, Black and Wine Colors.....				6.00				
Americus, 93 Pen Whip.....				6.00				
Gents' Light Driving No. 111.....				6.00				
Gents' Light Driving No. 106.....				5.00				
Hand-made Stocked Java No. 108.....			8.75	4.00				
A large variety of cheaper grades.....								50¢ to \$3.00
Team Whips.....								\$2.00 to \$7.50
Toy Whips.....								\$1.00 to \$2.00
Hardware Assortment, 10/American, 75 Whips for \$50.00.								\$2.50 to \$12.00

## Wire and Wire Goods—

## Iron—

Market,	Br. & Ann. Nos. 0 to 18.	75¢ to 10¢ to 18.75¢	Extra 5¢ to 10¢ often given and net prices often made on large lots.
Br. & Ann. Nos. 0 to 18.			
Cop'd, Nos. 0 to 18.75¢			
Galv., Nos. 0 to 18.			
Tin'd, Tin'd list, Nos. 0 to 18.			

Stone, Br. and Ann'd.	Nos. 18 to 18.	80%	Extra 10%
Nos. 18 to 18.			
Tinned Wire, 18 to 21.			
Galvanized Fence			
Brass, list Jan. 18, 1884.			
Copper, list Jan. 18, 1884.			
Annealed Wire on Spools.			
Malin's Annealed & Tin'd on Spools.			
Malin's Brass and Ann'd on Spools.			
Ossawann Mills, Ann'd and Tinned on Spools.			

Ossawann Mills, Brass and Copper on Spools. 50¢ to 10¢  
 Tate's Spooled, Tin'd & Annealed. 60¢ to 85¢  
 Tate's Spooled Cop. and Brass. 50¢  
 Cast Steel Wire. 50¢  
 Stub's Steel Wire. \$6.00 to 2.30¢  
 Steel Music Wire, 12 to 30, imported. 60¢ to 70¢  
 Wire Clothes Line, see Lines.  
 Wire Picture Cord, see Cord.

**Bright Wire Goods—**  
 Standard list. 85¢ to 10¢ to 10¢  
 Wire Cloth and Netting—  
 Painted Screen Cloth #100 ft. \$1.75  
 Galvanized Wire Netting. 75¢ to 10¢ to 10¢

**Wire Barb—**  
 See Trade Report.

**Wire Rope—See Rope, Wire.**

**Wrenches—**  
 American Adjustable. 40¢  
 Baxter's Adjustable "S". 40¢ to 10¢  
 Coe's Genuine. 50¢ to 10¢  
 Coe's "Mechanics". 60¢ to 10¢  
 Girard Standard. 65¢ to 10¢  
 Lamson & Sessions' Engineers'. 60¢ to 10¢  
 Lamson & Sessions' Standard. 70¢ to 10¢  
 F. S. & W. Agricultural. 75¢ to 10¢  
 Girard Agricultural. 75¢ to 10¢  
 Lamson & Sessions' Agric'l. 75¢ to 10¢  
 W. & B. Diamond. 75¢ to 10¢

**Bemis & Call's:**  
 Fat Combination Bright. 40¢ to 5¢  
 Fat Combination Black. 40¢ to 10¢  
 Merrick's Pattern. 45¢  
 Briggs's Pattern. 30¢ to 10¢  
 Cylinder or Gas Pipe. 45¢ to 5¢  
 No. 8 Pipe. 55¢  
 Aiken's Pocket (Bright). \$6.00, 50¢ to 10¢  
 The Favorite Pocket. \$4.00, 40¢  
 Webster's Pat. Combination. 25¢  
 Boardman's. 30¢  
 Always Ready. 25¢ to 5¢  
 Alligator. 50¢  
 Donohue's Engineer. 20¢ to 10¢  
 Eagle. 50¢ to 10¢  
 Acme, Bright. 50¢ to 5¢  
 Acme, Nickle. 40¢ to 5¢  
 Hercules. 70¢ to 5¢  
 Walker's. 55¢ to 5¢  
 Diamond Steel. 55¢ to 5¢  
 Cincinnati Brace Wrenches. 25¢ to 10¢  
 Taft's Vice Wrench. 55¢ to 10¢

## Wringers, Clothes

Am. Wringer Co.'s list, July 1, '93. 2¢ cash  
 Colby Wringer Co.'s list, Sept. 1, '91. 2¢ cash  
 Lovell Mfg. Co., list July 1, 1892. 2¢ cash  
 Seaver Mfg. Co., list Feb. 1890. 2¢ cash  
 June 1, 1892. 2¢ cash

## Wrought Goods—

Staples, Hooks, &c., list, March 17, 1892. 85¢ to 10¢ to 10¢

## Paints, Oils and Colors.—Wholesale Prices.

## Animal and Vegetable

## Oils—

Linseed, City, raw, per gal.	..	40
Linseed, City, boiled.....	38	40
Linseed, Natural, raw.....	38	40
Lard, City, Extra Winter.....	80	82
Lard, City, Prime.....	78	80
Lard, City, Extra No. 1.....	..	50
Lard, City, No. 1.....	..	45
Lard, Western, prime.....	..	75
Cotton-seed, Crude, prime.....	34	36
Cotton-seed, Crude, off grades.....	32	34
Cotton-seed, Summer Yellow, off grades.....	39	40
Cotton-seed, Summer Yellow, off grades.....	36	37
Sperm, Crude.....	70	77
Sperm, Natural Spring.....	50	82
Sperm, Bleached Spring.....	81	82
Sperm, Natural Winter.....	81	82
Sperm, Bleached Winter.....	86	88
Whale, Crude.....	..	..
Whale, Natural Winter.....	48	..
Whale, Bleached Winter.....	..	51
Whale, Extra Bleached.....	..	52
Sea Elephant, Bleached Winter.....	..	..
Menhaden, Crude, Sound.....	35	..
Menhaden, Crude, Southern.....	..	..
Menhaden, Light Pressed.....	39	40
Menhaden, Bleached Water.....	..	43
Menhaden, Extra Bleached.....	..	60
Tallow, City, prime.....	..	55
Tallow, Western, prime.....	..	55
Cocoanut, Ceylon.....	54¢	54¢
Cocoanut, Cochinn.....	64¢	64¢
Cod, Domestic.....	38	40
Cod, Foreign.....	42	45
Red Elaine.....	44	46
Red Saponified.....	44	46
Bank.....	38	..
Straits.....	39	..
Olive, Italian, bbls.....	58	60
Neatsfoot, prime.....	75	80
Palm, prime, Lagos.....	74¢	84¢

## Mineral Oils—

Black, 29 gravity, 25 to 30 cold test.....	per gal	7	7 1/2
Black, 29 gravity, 15 cold test.....	7 1/2	8	8 1/2
Black, 29 gravity, summer.....	6	6 1/2	6 1/2
Cylinder light, altered.....	14	16	16

## Paints and Colors—

Barytes, Foreign, 10 ton.....	\$22.00	\$24.00
Barytes, Amer. floated.....	29.00	\$32.00
Barytes, Amer. No. 1.....	16.00	\$18.00
Barytes, Amer. No. 2.....	15.00	\$15.00
Barytes, Amer. No. 3.....	11.00	\$12.00
Blue, Celestial.....	6	8
Blue, Chinese.....	40	50
Blue, Prussian.....	25	40
Blue, Ultramarine.....	8	25
Brown, Spanish.....	3	1
Brown, Vandyke, Amer.....	3	3 1/2
Brown, Vandyke, English.....	6	8
Carmine, No. 40, in bulk.....	2.75	..
Carmine, No. 40, in boxes or barrels.....	2.85	..
Carmine, No. 40, in ounce bottles.....	3.75	..
Chalk, in bulk.....	1.75	2.00
Chalk, in bbls.....	33	40
China Clay, English.....	10.00	\$18.00
Cobalt Oxide, prep'd.....	9.00	\$11.00
Cobalt Oxide, black.....	1.90	..
Cobalt Oxide, black.....	1.96	..
Green, Paris, in bulk.....	10	10 1/2
Green, Paris, 170 to 175 lb kegs.....	10 1/2	11
Green, Paris, small pack.....	12	17
Green, Chrome, ordinary.....	6	12
Green, Chrome, pure.....	22	25
Lead, Eng., B. E. white, dry or in oil.....	3 1/2	10
Lead, Ann'd White, dry or in oil.....	7	7 1/2
Kegs, lots less than 500 lb.....	6 1/2	6 1/2
Kegs, lots 500 lb to 5 tons.....	6 1/2	6 1/2
Kegs, lots 5 tons to 12 tons.....	6 1/2	6 1/2
Kegs, lots 12 tons and over.....	6 1/2	6 1/2
Lead, White, in oil, 25 lb tin.....	..	1/2
Lead, White, in oil, 12 1/2 lb tin.....	..	1/2
Lead, White, add to keg price.....	..	1
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price.....	..	2 1/2
Lead, Red, bbls, and 1/2 bbls.....	6	7
Lead, Red, kegs.....	6 1/2	7 1/2
Litharge, kegs.....	4	7 1/2
Litharge, bbls, and 1/2 bbls.....	6	7

TERMS, &c.—Lead and Litharge.—On lots of 500 lb or over, 60 days' time or 2 1/2 % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	1 1/2
Ocher, French Washed.....	1 1/2	2 1/2
Ocher, German Washed.....	1 1/2	3
Ocher, American.....	1 1/2	1 1/2
Orange Mineral, English.....	8 1/2	10 1/2
Orange Mineral, French.....	10	10 1/2
Orange Mineral, German.....	8 1/2	9 1/2
Orange Mineral, American.....	8 1/2	8 1/2
Paris White, English Cliff stone.....	1.00	1.15
Paris White, American.....	85	75
Red, Indian, English.....	5 1/2	7
Red, Indian, American.....	9	9 1/2
Red, Tuscan.....	9	11
Red, Venetian, American.....	100 lb.....	1.00
Red, Venetian, English.....	1.20	1.35
Sienna, Italian, Burnt and Powder.....	4	5
Sienna, Ital., Burnt Lumps.....	1 1/2	3 1/2
Sienna, Ital., Raw Powder.....	4 1/2	5 1/2
Sienna, Ital., Raw Lumps.....	1 1/2	3 1/2
Sienna, American, Raw.....	1 1/2	3 1/2
Sienna, American, Burnt and Powdered.....	1 1/2	1 1/2
Talc, French.....	1 1/2	1 1/2
Talc, American.....	1 1/2	1 1/2
Terra Alba, English.....	95	105
Terra Alba, American No. 1.....	70	80
Terra Alba, American No. 2.....	65	75
Umber, Turkey, Burnt and Powdered.....	3 1/2	4
Umber, Turkey Bnt. Ln.....	2 1/2	3
Umber, Turkey, Raw and Powdered.....	3 1/2	4
Umber, Turkey, R'w Lumps.....	24	24
Umber, Turkey, Bnt. Amer.....	14	14
Umber, Turkey, R'w Amer.....	14	14
Yellow, Chrome.....	10	25
Vermilion, American Lead.....	11 1/2	12
Vermilion, Quick's, bags.....	64	..
Vermilion, Quicksilver sm'r pks.....	62	..
Vermilion, English Import.....	85	90
Vermilion, Imitation, Eng.....	8	35
Vermilion, Trieste.....	80	92 1/2
Vermilion, Chinese.....	92 1/2	95
Whiting, Common #100 lb.....	37 1/2	42 1/2
Whiting Gliders.....	45	55

Zinc, American, dry..... 4 @ 4 1/2  
 Zinc, French, Red Seal..... 7 1/2 @  
 Zinc, French, Green Seal..... 9 @  
 Zinc, French, V. M. X..... 7 @  
 Zinc, Antwerp, Red Seal..... 7 1/2 @  
 Zinc, Antwerp, Green Seal..... 7 1/2 @  
 Zinc, German, L. Z. O..... 6 1/2 @  
 Zinc, V. M. in Poppy Oil, G Seal, lots of 1 ton and lots less than one ton..... 10 1/2 @ 11 1/2  
 Zinc, V. M. in Poppy Oil, Red Seal..... 10 @ 10 1/2  
 lots of less than 1 ton..... 10 1/2 @ 10 1/2  
 Discourts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 15; 25 bbls, 2 1/2; 50 bbls, 4 1/2. No discount allowed on less than bbl. lots.

## Colors in Oil—

Black, Drop, Frankfurt.....	25	30
Black, Drop, English.....	12	15
Black, Drop, Domestic.....	7	10
Black, Lampblack, Best.....	20	35
Black, Lampblack, Common.....	7	13
Black, Ivory.....	8	15
Blue, Chinese.....	35	40
Blue, Prussian.....	20	45
Blue, Ultramarine.....	12	18
Brown, Vandyke.....	7	12
Green, Chrome.....	8	13
Green, Paris.....	16	18 1/2
Sienna, Raw.....	7	14
Sienna, Burnt.....	7	14
Umber, Raw.....	7	10
Umber, Burnt.....	7	10

## Putty—

In barrels and 1/2 bbls.....	.013 1/2 @	.013 1/2
In tubs.....	.015 1/2 @	.015 1/2
In tin cans.....	.011 1/2 @	.021 1/2
In bladders..	.017 1/2 @	.021 1/2

## Spirits Turpentine—

In regular bbls.....	..	29 1/2
In machine bbls.....	..	30

## Glue—

Low Grade.....	8	10
Cabinet.....	12	14
Medium White.....	13	15
Extra White.....	17	20
French.....	10	22
English.....	10	15
Irish.....	12	..

## THE IRON AGE.

The oldest paper in the world devoted to the interests of the Hardware, Iron and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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